The Dissertation Committee for Laura Christine Amos Certifies that this is the approved version of the following dissertation (or treatise):

AN EXAMINATION OF 1920s PARISIAN POLYTONALITY:

MILHAUD'S BALLET LA CRÉATION DU MONDE

Committee:

Marianne Wheeldon, Supervisor

David Neumeyer

Byron Almen

James Buhler

Linda Henderson

AN EXAMINATION OF 1920s PARISIAN POLYTONALITY: MILHAUD'S BALLET *LA CRÉATION DU MONDE*

by

Laura Christine Amos, BM., MA.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May, 2007

AN EXAMINATION OF 1920s PARISIAN POLYTONALITY:

MILHAUD'S BALLET *LA CRÉATION DU MONDE*

Publication No._____

Laura Christine Amos, Ph.D.

The University of Texas at Austin, 2007

Supervisor: Marianne Wheeldon

This dissertation examines the role of polytonality in Milhaud's works of the 1920s. It is accomplished through a contextual examination of the cultural meaning of polytonal music in Paris and a study of contemporary analytical techniques for this repertoire. The goal of this study is to facilitate the analysis of polytonal textures that are embedded at both the foreground and background levels of Milhaud's compositions. Chapter 1 examines the attitudes of Parisian critics, scholars, and musicians regarding the viability of polytonality as a musical practice in post-war France. Chapter 2 discusses Milhaud's views and compositional procedures of polytonality, including his response to the Parisian polytonal debates. Chapter 3 explores recent scholars' forays into the analysis of Milhaud's polytonal works. These studies primarily explain Milhaud's polytonality through three methods: pc set analysis, descriptive analysis, and linear analysis. Chapter 4 analyzes Milhaud's *La Création du monde* in a polytonal context through the

application of Joseph N. Straus' theory of tonal axes, Charles Koechin's *jalón vertical*, and linear analysis.

Table of Contents

Introduction: New Perspectives of Milhaud's 1920s Polytonal Works

This dissertation examines the implications of 1920s polytonality in the works of Darius Milhaud through multiple perspectives. It is accomplished by making an inquiry into the French musical debates of the 1920s regarding the polytonal style, a study of Milhaud's contribution to these polytonal debates, an analysis of Milhaud's theory of polytonal composition, and a survey of current scholars' methods for interpreting Milhaud's polytonal textures. This leads to an examination of Milhaud's polytonal works through an axial-based analysis.

Parisian attitudes towards polytonality in the 1920s as argued by scholars, critics, and musicians were varied, and each viewpoint had different cultural implications and musical goals. For the purposes of this study, prevalent schools of thought are split into three groups: the polytonalists, traditionalists, and atonalists. The polytonalists viewed polytonality as a representation of a new French musical practice that stood as a complement to the atonal compositions of the Second Viennese School. The traditionalists viewed polytonal writing as equivalent to atonal writing and aligned it with the Second Viennese School. Their political views regarding foreign influences framed the Second Viennese School as a negative influence on French modern music. The atonalists, like the traditionalists, made fewer distinctions between polytonal and atonal practices, but asserted that any new musical style was a beneficial to postwar France. Thus, they viewed both French polytonality and the Second Viennese School as positive influences. The polytonal debates and their ramifications are outlined in Chapter One.

As a result of the debates, it was necessary to study Milhaud's beliefs and practices regarding polytonality. Milhaud's views were aligned with the polytonalists, in that he believed in the viability of both polytonality and atonality, but asserted that the former was the next link in France's musical tradition. In order to align himself with a nationalist musical tradition, he found the roots of polytonality in earlier masters revered by the French, such as Couperin and J.S. Bach. Milhaud then outlined a method of polytonal composition. His theory, as expressed in the 1923 article "Polytonalité et atonalité," provided every possibility for the combination of two to three major and/or minor keys. Milhaud also asserted that he derived his polytonal textures from first inversion seventh chords (6-5 chords) instead of extended tertian chords. Milhaud's viewpoint is explored in Chapter Two.

Chapter Three assesses existing analyses of Milhaud's polytonal music to determine the validity of their methodology to express polytonal textures as described by Milhaud. There were three main results. The first group of scholars focused on pitch class set analysis, the second group on a more traditional descriptive analysis style, and the third on post-Schenkerian linear analyses. Most scholars in all three groups limited polytonal textures to two keys. Consequently, their systems would need to be modified or a new method would need to be established for large-scale works in multiple concurrent keys.

Chapter four establishes a new groundwork for the analysis of Milhaud's polytonal works, through an examination of his 1923 ballet, La Création du monde, Opus 81. This study found that Milhaud's assertions as regards polytonal textures was congruent with Joseph Straus' theory of axial polarity and Charles Koechlin's vertical stake. This analysis focuses on how Milhaud established, developed, and resolved axes that represented the polytonal textures on both the middleground and background levels

and explains how this method of composition then generates the motives and textures present on the foreground level, using Koechlin's vertical stakes to anchor the harmonies at significant points in the ballet. In the future, an axial theory of Milhaud's polytonality could be expanded or developed to apply to the composer's other polytonal works, especially those of the 1920s.

Chapter 1: The 1920s Polytonality Debates in the Parisian Press

INTRODUCTION

In the late teens of the twentieth century, composers began debating the merits of what they considered to be the new musical styles of polytonality and atonality. Paris-based musicians and critics classified the compositional styles of the time in various ways. Their views of polytonality and its place within the French tradition resulted in three musical schools of thought, which for the purposes of this study which will be referred to as the polytonalists, traditionalists, and atonalists. Each group had a different point of view regarding their belief and acceptance of polytonality as a valid French practice. The polytonalists still promoted a view of cosmopolitanism after World War I. In order to have the practice of polytonality accepted by the (traditionalist) conservative mainstream, they advocated polytonality as an extension of tonality, finding its roots in composers accepted by the conservatives, including J.S. Bach and the older generation of French composers, with a focus on the Debussyste style. Although traditionalists were highly xenophobic both before and after World War I, they aligned current French music with both French composers and early German ones. Their view was considered part of the French cultural mainstream The atonalists, however, like the polytonalists, embraced avant-garde techniques and had no qualms accepting polytonality as a French practice. Consequently, they believed polytonality was an atonal practice instead of a tonal one.

Criteria for examining the polytonal debate of the teens and twenties include the following issues: How did each critic define polytonality? Did they separate this definition into contrapuntal polytonality versus polychords, or did they consider both of

these compositional methods to be polytonal?[1] Were pedal points, ostinati, and other non-chord tones considered acceptable devices in polytonal compositions? How did each author define atonality? This study will also examine which composers were considered to be representative of each style, and whether or not polytonality and atonality were considered to have stemmed from any previous compositional practices or traditions. Linking polytonality to previous generations of composers allowed contemporary critics to legitimize polytonality.

The polytonal debate erupted into print in 1917 in an exchange between Vincent d'Indy and Charles Koechlin in Le Courrier musical.[2] In this exchange, d'Indy targeted the newer styles connected with the Société Musicale Indépendante. His comments ran the gamut from commentary on the Debussyste style, atonal writing, and polytonal writing.[3] However, d'Indy specifically directed his abhorrence towards polytonality, to which he applied the epithet "style boche," or written in bad taste.[4] "Style boche" was a loaded term that extended the anti-German viewpoint present during World War I to

---

[1] Throughout this text the term contrapuntal polytonality refers to the practice of superimposing melodies in multiple keys, while polychords refers to vertically stacked textures with multiple roots.

[2] Vincent d'Indy, "Esthétique," *Le Courrier musical* (15 Jan 1917): 26; Charles Koechlin, "Esthétique?," *Le Courrier musical* (15 Feb 1917): 78-80. Barbara Kelly brings this debate to light in her book, *Tradition and Style in the Works of Darius Milhaud, 1912-1939* (Burlington, VT: Ashgate, 2003). François de Medicis also outlines the debate in regard to how Milhaud was viewed by the Parisian critics in, "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s," *Music & Letters* 86:4 (Nov 2005): 575. However, de Medicis believes that the debate began in 1920 with Henri Collet's two articles, which officially established the group of Les Six in the eyes of the press: Henri Collet, "Un livre de Rimski et un livre de Cocteau. Les cinq Russes, les six Français et Erik Satie," *Comoedia* (16 Jan 1920), reprinted in Jean Roy, *Le Groupe des Six* (Paris, Seuil, 1994): 192-198 and Henri Collet, "Les six Français: Darius Milhaud, Louis Durey, Georges Auric, Arthur Honegger, Francis Poulenc et Germaine Tailleferre," *Comoedia* (23 Jan 1920) reprinted in Jean Roy, *Le Groupe des Six* (Paris, Seuil, 1994): 198-203. Collet used these two articles to establish the general style of les Six however, and not as a platform for forwarding theoretical goals on composition. So, although Collet noted that les Six used polytonality, no other information regarding its use was mentioned.

[3] François de Medicis, "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s," *Music & Letters* 86:4 (Nov 2005): 585.

[4] Both Barbara Kelly and François de Medicis take note of d'Indy's use of the term '*style boche*,' but do not provide an explanation for it. Barbara Kelly, *Tradition and Style in the Works of Darius Milhaud: 1912-1939* (England: Ashgate, 2003): 142; François de Medicis, "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s," *Music & Letters* 86:4 (Nov 2005): 586; and "Boche," *The Oxford English Dictionary Online* (accessed 1 Mar 2006) <http://www.oed.com>.

current German and Austrian musical styles associated with Schoenberg and the Second Viennese School. French rejection of Germanic principles was promoted by the conservative Ligue de l'Action Française, which stated that any new German or Austrian music not yet in public domain was "dangerous" to the development of French music.[5] Current scholars have discussed the subtext of this anti-German sentiment in France during the interwar period. Kenneth E. Silver traces the beginnings of anti-German sentiment in the arts back to the end of the Franco-Prussian war in 1870, while music scholars Jane F. Fulcher and François de Medicis specifically focus on the musical ramifications of this sentiment. Silver discusses connections between anti-German sentiment and the development of French music from as early as the 1870s. This study, however, will discuss the relationship between French music and German and other foreign influences in three broad movements from the beginning of the First World War, in 1914.

The French government began interviewing and expelling foreigners from the beginning of World War I. One way out of being expelled from France was to join the French military. At the same time, the "foreign" Cubist style of art was also attacked in the press and by the government—it was not unheard of for Cubist artwork to be confiscated from homes by the French government. This anti-German sentiment was applied to many facets of French society, including philosophy, art, mass-produced goods, and music.[6] Fulcher defines "boche" as being music that was considered "Germanic and modernist."[7] De Medicis asserts that d'Indy's comments on polytonality

---

[5] In addition, the *Ligue* tried to prohibit performances of Germanic works that were not yet in the public domain. Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 203.

[6] Kenneth E. Silver, *Esprit de Corps: The Art of the Parisian Avant-Garde and the First World War, 1914-1925* (Princeton, New Jersey: Princeton University Press, 1989): 3-11.

[7]. Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 203. Fulcher notes that there was disagreement in the beginning regarding which music was considered to contain negative Germanic

were not only anti-German; they were also anti-Semitic.[8] As a result, d'Indy's article in Le Courrier musical attacked everything Koechlin represented, including the Conservatoire, the Société Musicale Indépendante, and Koechlin's polychordal compositional style.[9]

Koechlin responded to d'Indy's diatribe a month later, in February 1917, by defending polytonality in his article "Esthetique?" He differentiated between polytonality and atonality, noting that, "…I don't deprive myself from superimposing two or three tonalities, and I am also strongly interested in the atonal compositions of Mr. Schoenberg."[10] His overall argument was threefold: Koechlin argued that the roots of polytonality extended back to the Baroque; that the polytonal style was an extension of French nationalistic music;[11] and that polytonality also existed on a cosmopolitan level throughout Europe. Koechlin defended both polychords and contrapuntal polytonality by arguing that they were derived from the writings of earlier masters such as Bach, Beethoven, and Haydn, which were acceptable even to d'Indystes' conservatism. According to Koechlin, polytonality had been present in Romantic compositions from as early as 1890.[12]

---

influences. As the public clamored for their favorite works by German composers on concert programs during the war, Beethoven was brought into the canon because of his Belgian ties; later, composers in the public domain such as Bach, Handel, Schubert, Mendelssohn, Weber, and Wager were considered positive historical influences.

[8] François de Medicis, "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s," *Music & Letters* 86:4 (Nov 2005): 585.

[9] In his article, d'Indy continued to draw the lines of battle to forward what he held most dear. This included the Franckiste style of writing that he taught at the *Schola Cantorum*, which was a weak rival to the Paris *Conservatoire*. Ironically, Erik Satie was one of the most well known students of this institution, as he forwarded the aims of Milhaud and Les Six. In addition, the leader of the Ligue, Charles Tenroc, edited the journal Le Courrier musical. Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 204.

[10] "Mais je ne me prive pas… de superposer deux ou trios tonalities, et m'interessé fort aux compositions *atonales* de M. Schoenberg." Charles Koechlin, "Esthétique?" *Le Courrier musical* (15 Feb 1917): 79.

[11] "…et la superposition de deux tonalités n'a *en soi* rien de boche. On peut entirér des affets musicaux compatibles avec nos qualities nationals." Ibid: 80.

[12] As in Alfred Bruneau's composition entitled *Rêve.* Ibid: 80.

The opening exchange between Koechlin and d'Indy achieved more than merely initiating the debate on polytonality. It also defined composers' core beliefs depending on whether or not they accepted this practice. On one hand, those who accepted polytonality as a viable practice would be allied with the Conservatoire and its compositional teachings. These composers and critics were considered to be out of touch with the French cultural mainstream, because they had a "universalist" stance regarding the value of musical works and compositional procedures based outside of France.[13] On the other hand, those who denied polytonality as a viable practice were aligned with the Schola Cantorum, which is ironic, considering d'Indy's anti-German outlook. The views of the d'Indystes were aligned with the French cultural mainstream.[14] Ergo, while the exchange between Koechlin and d'Indy focused on compositional taste, the result defined the acceptance of compositional practices. D'Indy and Koechlin's comments on polytonality led to a general outpouring by critics and composers on the subject. As the debate progressed, the polytonalists, the traditionalists, and the atonalists each defended their respective schools of thought.

THE POLYTONALISTS

The articles of the polytonalists can be split into two types: the first type outlined the actual compositional means for creating polytonality, while the second type discussed the viability of the practice in relation to composers active in Paris in the 1920s. Febre-Longeray and Koechlin focused more on the former, and outlined procedures for both the composition and analysis of polytonal structures. Landormy, de Schloezer, and Deroux

[13] Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 211-212.
[14]Ibid: 213.

also outlined the construction of polytonality, but focused more on the musical ramifications of adopting this practice. The polytonalists focused on four topics: creating a precise definition of polytonality, the use of pedal points in polytonal structures, music analysis, and a redefinition of the French musical canon that traced the musical lineage of polytonality.

DEFINITIONS OF POLYTONALITY

The polytonalists' definition of polytonality began with the presumption that polytonal textures could be subdivided into two groups: polychords and contrapuntal polytonality. Polychords were created in a texture that allowed for multiple chord roots in vertical harmonies, whereas contrapuntal polytonality was a horizontal principle, based on the superimposition of melodies. Landormy, Koechlin, and Febre-Longeray each provided a new level of understanding of existing polytonal compositional methods. First, Landormy identified contrapuntal polytonality as a separate practice from polychordal writing and atonality. Second, Koechlin analyzed polytonal works from the teens and twenties to delineate between polychordal and contrapuntal polytonal textures. Third, Febre-Longeray provided a concrete theory that utilized traditional key relationships to create polytonal textures.

Landormy was one of the first critics to separate the use of polychords from that of contrapuntal polytonality. He associated melody-based writing with an extension of French musical practices, which included contrapuntal polytonality. This melodic focus came to the forefront in Satie's compositions: "A simple and clear line draws each object

clearly. "In music, this line is the melody." The more one requires rare harmonies for harmony's sake, the more chordal a work. French music must be essentially melodic.[15] Landormy therefore validated composers who followed in the footsteps of Satie, such as members of Les Six. He described contrapuntal polytonality as simply "melodies presented in different tonalities."[16] Each melody focused on a simple, non-modulating theme from a single scale.[17] Landormy noted that atonal writing could also be melodic, but would not function tonally. Modulating melodic sections were not to be considered atonal, but functioned tonally in the same manner as a unitonal work.[18] By focusing on melodic composition, Landormy clarified the difference between contrapuntal polytonality and atonality.

In his 1930 treatise, Koechlin began his argument by explaining the differences between the two available polytonal methods: polychordal writing and contrapuntal polytonality.[19] Koechlin's polychordal types were separated into three classes. The first class was created by combining two or three perfect major or minor triads. The second class combined a perfect triad with any species of seventh chord. The third combination utilized alternate chords, through the combination of a perfect triad, a seventh chord, and an alternate chord, such as a quartal chord (257). In his view, polychordal writing stacked chords belonging to two different keys. Koechlin's definition of contrapuntal polytonality was comprised of two subsets: melodic-based writing with and without pedal points. Koechlin provided examples of contrapuntal polytonality in his own work, as

---

15"Une ligne simple et nette pour dessiner clairement chaque objet. 'En musique, la ligne c'est la mélodie.' Plus de recherché de l'harmonie rare pour elle-même, plus d'écriture par accords. La musique française doit être essentiellement mélodique." Paul Landormy, "Le Déclin de l'Impressionisme," *La Revue Musicale* 2:4 (1 Feb 1921): 108.

16Paul Landormy, "Musique polytonale et atonale," *La Victoire* (31 Jan 1922).

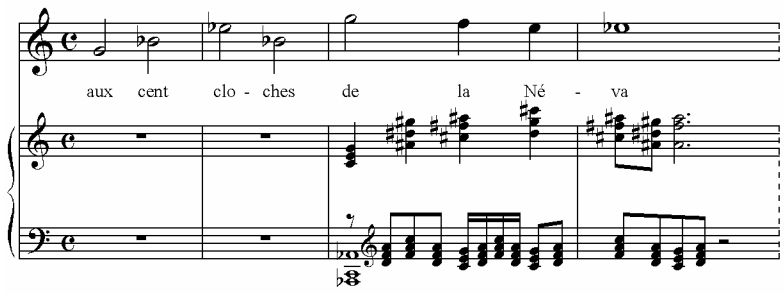
17Ibid.

18Ibid.

19Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 254, 259.

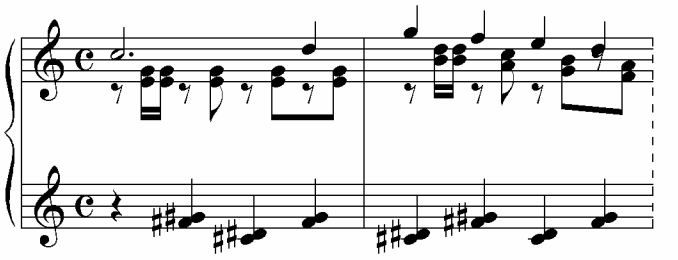
well as that of Milhaud and Stravinsky. While Koechlin did not identify each stream according to key, as he believed this was readily apparent, his identification of distinct tonal streams and their function within a texture gives one insight into how polytonal textures were created in the 1920s. Example 1.1 was used to explain Milhaud's style of contrapuntal polytonality:

Example 1.1 – Darius Milhaud, Soirées de Petrograd, "La Limousine," mm. 9-12 (258)



Koechlin asserted that there were three streams present in Example 1.1: the first in the vocal line, the second in the treble, and the third in the bass of the accompaniment. His analysis stated that elements of both polychordal writing and contrapuntal polytonality were present. The vocal line and the bass provided melody-based elements, while the quarter notes in the treble of the accompaniment provided contrast through the use of "bell-like" chords, which reflected the song's text in the second measure of this example (258-59). Although the bass clef of the piano part is written in block chords, one notes that the overall result of the texture contains its own melodic contour. The second style of contrapuntal polytonality featured pedal points against a melody or melodies. As an example, Koechlin also presented Milhaud's use of multiple pedal points within a texture:

Example 1.2 - Darius Milhaud, Soirées de Petrograd, "Monsieur Protopopoff," mm. 2-3 (259)



In Example 1.2, Koechlin noted that the bottom stave contains a quadruple pedal point, on the pitches F#, G#, C# and D#, respectively. A second tonal stream in the upper stave accompanies this pedal point, which is a contrapuntal succession of 6-3 chords. The juxtaposition of the 6-3 harmonies against the pedal point facilitates the aural perception of bitonality (259). These two examples of contrapuntal polytonality contained the means to reconcile harmonic elements with contrapuntal textures.

In his 1923 article "Du systeme polytonal," Febre-Longeray placed his focus on creating a theoretical method that supported the combinations of keys in polytonal structures.[20] His definition of polytonality reflected the need for his system of key combinations. Febre-Longeray's definition of polytonality had three parts. First, he believed that both polychords and contrapuntal polytonality were the building blocks of a polytonal style. Second, multiple key streams did not need to function throughout an entire work in order to consider sections of it as polytonal.[21] Third, Febre-Longeray, like Landormy, recommended different registers for each key to facilitate the juxtaposition of

[20] André Febre-Longeray, "Du systeme polytonal," *Le Courrier musical* 25:8 (15 Apr 1923): 141-144.
[21] Ibid: 141.

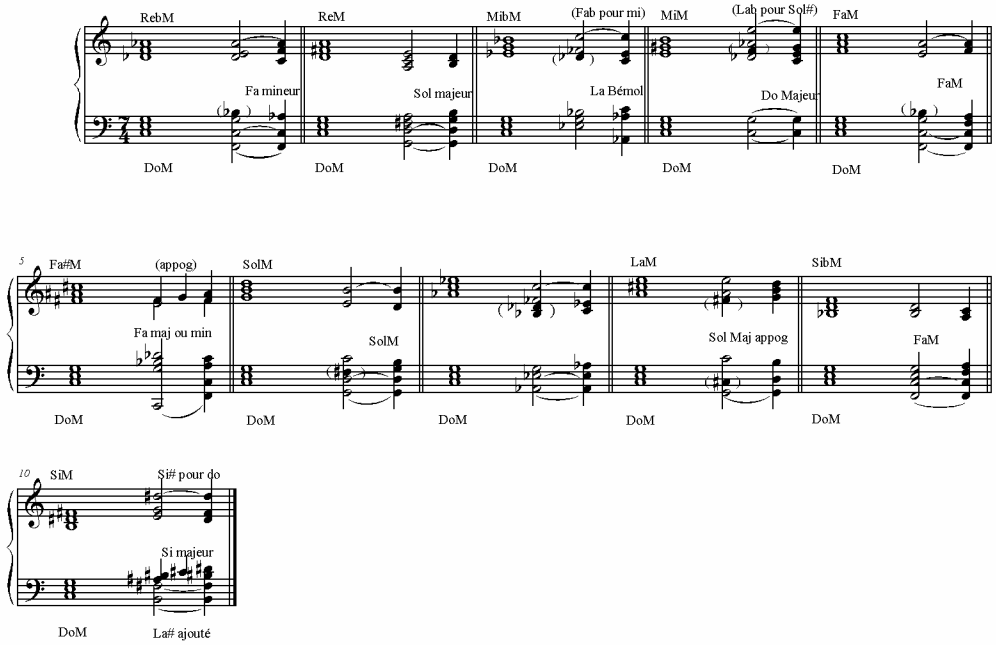
multiple keys.[22] After Febre-Longeray provided a clear definition of polytonal structures, he continued by outlining his method of combining keys on the bitonal level. Example 1.3 details how Febre-Longeray viewed the harmonic origins of dual-key relationships.

Example 1.3 illustrates that any two major triads may be combined to form a polychord or polytonal fabric. The whole notes illustrate the combination of two keys, the half notes represent the relationship of the two chord roots in a single key, and the quarter notes show the single key from which the bitonal combination was derived. For example, the first illustration in the chart combines of C major and Db major. Febre-Longeray contextualized these two keys by showing how they relate to each other in F minor, where C is the dominant chord (V) and Db is the submediant (VI). He continued with each root combination in the same manner. Likewise, the relationship between C major and D major is explained in the context of G major, where C is the subdominant (IV) and D is the dominant (V). In other words, Febre-Longeray provided a context where each pair of keys was derived from a single tonality. This suggests that any two triad combinations could be used to create a fabric with two tonal centers. Febre-Longeray asserted that if one had enough parts, one could have a texture with up to seven key combinations, including a mixture of major and minor keys.[23] As a result, Febre-Longeray's definitions of polytonality facilitated the use of the new style. By expanding the definition of polytonality to include polychords and contrapuntal polytonality, composers had the freedom to use and combine these styles as they wished. Additionally, Febre-Longeray's illustrations provided a concrete connection between

[22] Ibid: 144. The assignment of each key to a certain register or group of instruments occurred in Milhaud's works of the time, including *La Création du monde*. Also see Paul Landormy, "Musique polytonale et atonale," *La Victoire* (31 Jan 1922).
[23]Ibid: 143.

polytonality and tonality, thereby supporting the belief that polytonality was an extension of previous tonal practice.

Example 1.3 - Febre-Longeray's Development of Bitonal Textures from Unitonal Contexts[24]



PEDAL POINTS

Another method composers used to place focus on melodic writing while utilizing multiple keys was the pedal point. This pedal point could be consonant or dissonant within the texture. It could appear in any voice and, as such, was one means of easily

24 André Febre-Longeray, "Du systeme polytonal," *Le Courrier musical* 25:8 (15 Apr 1923): 143.

creating polytonal textures. While Febre-Longeray and Koechlin asserted that one could easily create polytonal textures through decorations such as passing tones and appoggiaturas, and procedures, such as imitation, their focus was on the pedal point and its close relative, the ostinato.[25] Several authors, including Deroux and Febre-Longeray, associated pedal points with the birth of polytonal writing that dated from the Baroque, specifically within J.S. Bach's compositions.[26] Two authors who discussed polytonal pedal points in detail were Landormy and Koechlin.

In his 1921 article, "Le decline de l'Impressionisme," Landormy outlined three beneficial uses of pedal points. First, pedal points may be used for single or multiple tones. Second, they provide a foundation from which to create extreme dissonance, and third, the pedal point can be used for the superposition of harmonies or tonalities.[27] The assertion that a pedal point may aid both the superposition of chords and keys indicates that Landormy equally favored polychordal writing and contrapuntal polytonality. He also asserted that established musical devices could serve as a foundation for the new polytonal style. For example, Landormy stated that the pedal point had been around for hundreds of years. Consequently, the listener could be exposed to polytonality in a gentle, non-abrasive manner if one used polytonal pedal points.[28] Landormy called for a theory of pedal points to be established as a next step for the acceptance of polytonality as a new style of music.[29] As polytonal music was well established by the 1920s, Landormy believed that it would only be a matter of time before polytonal practices would become codified. This remark would prove prescient by the end of the decade, when Koechlin

---

[25] André Febre-Longeray, "Du systeme polytonal," *Le Courrier musical,* 25:8 (15 Apr 1923): 142; Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 253.

[26] Febre-Longeray, "Du systeme polytonal," *Le Courrier musical,* 25:8 (15 Apr 1923): 142; Jean Deroux, "La Musique Polytonale," *La Revue musicale,* 2:11 (1 Oct 1921): 251-257. See page 252.

[27] Paul Landormy, "Le Déclin de l'Impressionisme," *La Revue musicale* 2:4 (1 Feb 1921): 112.

[28] Ibid: 112.

[29] Ibid: 113.

codified the multiple styles of polytonality and atonality used by composers in the 1920s in his Traité de l'Harmonie.[30]

In this treatise, Koechlin provided two arguments for the use of pedal points. First, he legitimized the practice by analyzing examples by earlier French composers, including Debussy and Bizet. According to Koechlin, Debussy's use of pedal points could be analyzed as unresolved appoggiaturas. Therefore, bitonality was the aural result.[31] Consequently, traditional procedures such as passing tones, appoggiaturas, imitation, and pedal points could expand unitonal textures into viable polytonal ones. Second, he extended the flexibility of pedal points by linking them to their close relative, the ostinato. Pedal points were considered important, both as a holding point in the bass and, through the use of ostinati, as a more melodic phenomenon: "One admits completely foreign tonalities through the pedal; one approaches and leaves pedals without consonance in the 1st or last harmonies; one writes more or less developed "melodic pedals."[32] The use of ostinati, or "melodic pedals," allowed for the use of multiple types of pedal points, thus legitimizing them as a hallmark of the polytonal style.[33]

MUSIC ANALYSIS

In order to distinguish current French musical style from that of the Second Viennese School, the polytonalists concluded that it was important to correctly analyze polytonal textures. First, they asserted that one could distinguish polytonal textures from atonal ones by examining melodic or harmonic resolutions. If the various textures

30 Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930).
31 Ibid: 251-53.
32 On admet des tonalities tout-à-fait étrangères à celle de la pédale; on aborde et l'on quitte des pédales sans que le 1er ou que le dernier accord soient consonants; on écrit des "pédales mélodiques" plus ou moins. Ibid: 266.
33 Please see Example 1.2 for an explanation of polytonal pedal points according to Koechlin.

followed tonal laws and eventually resolved, they were polytonal. Conversely, if there was no point of resolution according to tonal laws, these textures were considered atonal. Second, Koechlin discovered the use of the 'jalon vertical,' or vertical stake, within polytonal textures. The vertical stake utilized polychords to anchor harmonies at significant points within a work. The identification of the 'jalon vertical' illuminated harmonic progression within polytonal contexts.[34] Consequently, Koechlin held the view that polychords were structural, while contrapuntal polytonality was not. According to Koechlin, therefore, the "inferior practice" of contrapuntal polytonality needed polychordal support to achieve harmonic goals.[35] As a result of these studies, Koechlin averred that although an analyst could identify polytonality by using his methods, knowing a composer's style was crucial to understanding musical intent. Finally, Koechlin analyzed musical textures through vertical slicing, based on a composer's style. Febre-Longeray and Koechlin were the two polytonalists who outlined these methods in the greatest detail.

Febre-Longeray believed that polytonal writing could sound more atonal if chordal resolutions were constantly delayed.[36] This criterion was needed to clear up confusion between polytonal and atonal works on the surface level because they utilized chromaticism differently. While Koechlin considered chromaticism as the basis for atonal music, such as Schoenberg's, he asserted that chromaticism could be used in both styles. In tonal or polytonal works, the chromaticism would resolve according to tonal rules. Koechlin believed that studying resolutions would avoid confusion in identifying

---

[34]Koechlin defines the "jalon vertical" through function. It has the same vertical/harmonic implications as regular polychords. Please see Koechlin's definitions of polychords under the previous heading "Definitions of Polytonality." Koechlin discusses the acceptable types of polychords in his *Traité de l'Harmonie*. Ibid: 257.

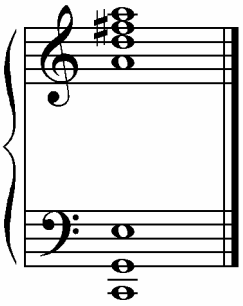
[35]Ibid: 250.

[36] Febre-Longeray, "Du systeme polytonal," *Le Courrier musical* 25:8 (15 Apr 1923): 141-2. Unfortunately, Febre-Longeray did not mention a canon of polytonal or atonal composers. As his musical definitions were quite similar to Milhaud's, it would be interesting to have this information.

polytonal or atonal works, which clarified the chromaticism utilized in both styles.[37] Overall, the polytonalists believed that if a chromatic structure resolved tonally, then it was to be classified as polytonality. If the chromatic structure delayed or avoided resolution, it might be atonality.

Koechlin believed that a single vertical slice of a composition could be analyzed in multiple contexts, according to the overall musical style. By analyzing a single example in multiple ways, he clarified the contextual use of polychords for the musical vocabularies, labeling them as late romanticism, polytonality, and atonality. Example 1.4 shows Koechlin's polychord, which combined a C major and a D major triad, separated by register for clarity. In Example 1.4 Koechlin provided three interpretations of this single chord. First, he ascribed the aggregate as an altered tertian chord; second, as a traditional polychord; and third, as an elaborated decoration.

Example 1.4 - Koechlin's polychord (264)



As a result of this analysis, he separated practices by Les Six from practices of the earlier generation (such as Ravel and Debussy):

[37] Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 263.

> There are several ways to analyze a bitonal aggregate. It will be necessary to choose an analysis on a case by case basis: to imply (when they are not explicit) the 7+ chord in the style of Mr. Honegger, to analyze two or three triads in works of Mr. Milhaud, or to interpret those of Mr. Ravel as unresolved appoggiaturas, etc.[38]

Therefore, it was the context of a chord, not its components that determined its use within a work.

FRENCH MUSICAL CANON

Authors differed in their descriptions of the origins and lineage of polytonality. Some based their views on musical analysis, others on canon. The former were concerned with compositional theory while the latter were more concerned with how polytonality fit into a living French musical tradition. This validation of polytonality by framing it as a marker of modern French style was needed to separate the practice from the atonality forwarded by the Second Viennese School. After World War I, the French conservative musical community believed that it was important to look inward, to keep the French tradition alive instead of taking inspiration from foreign influences. As a result, the more progressive polytonalists aligned the polytonal style with composers that fit within their canon. On one hand, they included non-French composers from earlier periods, such as J.S. Bach. On the other, they adopted romantic and early modern generations of French composers, including Debussy, Saint-Saëns, Chabrier, and Dukas. However, the polytonalists would not go so far as to embrace the canon of German

[38]"Quant aux aggregations bitonales, plusieurs façons d'analyser s'offrent à nous; il est probable que, suivant les cas, il faudra choisir l'une ou l'autre: sous-entendre (lorsqu'elles ne sont pas explicites) des 7+ chez Mr Honegger, considerer des accords parfaits doubles ou triples dans les oeuvres de Mr Milhaud, interpréter celles de Mr. Ravel au moyen d'appogiatures non résolues, etc." Ibid: 265.

composers espoused by the conservative mainstream.[39] Each composer or critic put his own stamp upon how polytonality fit into the modern style. Koechlin, with his ties to Casella and concentration upon theories of polytonal construction, accepted polytonality from an internationalist viewpoint. Landormy, however, clearly delineated between previous generations of post-impressionism and the current one, with a focus on Les Six.

The authors Landormy and Deroux both traced the musical lineage of polytonality in order to promote it as a legitimate practice. The former traced polytonal lineage from French composers, while the latter held more cosmopolitan views regarding the choice of polytonal influence. Landormy's 1920 article entitled "M. Darius Milhaud" is of interest because he firmly placed Milhaud within the French tradition.[40] In this article, he promoted Milhaud's role as the "helmsman of Les Six" by comparing elements in his compositions with the romanticists of the previous generations. For example, Landormy noted that Milhaud's style in his vocal works was reminiscent of the style of Chopin and Debussy. However, in 1921 Landormy revised this canon. In "Le Déclin de l'Impressionisme," he traced the new musical style of Les Six from composers such as Ravel, Roussel, Séverac and Schmitt.[41] While he noted that Stravinsky and Schoenberg had also helped to end impressionism, they were not considered a part of the French tradition and therefore not a focal point of discussion.

Deroux's lineage of polytonality was more international in nature. Study of the concurrent debate on polytonality made him choose inspirational composers with care. He marked the birth of polytonality in the music of J.S. Bach, whose works were

---

[39] Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 202, 210. See Footnote 6 for a list of these composers.

[40] Paul Landormy, "M. Darius Milhaud," *La Victoire* (21 Sept 1920).

[41] Paul Landormy, "Le Déclin de l'Impressionnisme," *La Revue musicale* 2:4 (1 Feb 1921): 97-113.

considered compatible with the canon.[42] Deroux stated that the polytonal style also had its foundation in the works of Strauss, Stravinsky, Schoenberg, Bartók, Debussy, Ravel, Schmitt and Satie. In addition, Deroux believed that the members of Les Six, Koechlin, and Casella, among others, were using polytonal principles in a "systematic way."[43]

As a result of approving both styles of polytonality, the polytonalists necessitated the construction of a new French classical canon in order for the mainstream to accept this style of composition. By creating a definition of polytonality that was tied to tonality and showing this connection through musical analysis, it was possible to link polytonality to older generations of composers, going back to the Baroque. These links reinforced the connection between the polytonal style and the French tradition, thus protecting it from Germanic influences.

TRADITIONALISTS

The traditionalists viewed polytonality through a different lens. Writers who belonged to this school of thought included Vincent d'Indy, Émile Vuillermoz, Georges Migot, Henri Prunières, and Boris de Schloezer. Like the polytonalists, the atonalists fall into two broad camps. D'Indy, Vuillermoz, and Migot were against polytonality in any guise, and thus did not describe polytonal compositional practices in a meaningful way in their writings.[44] However, Prunières and de Schloezer admitted the presence of polytonality in French music of the 1920s, if it was subjected to a strict hierarchy. Therefore, polychordal writing, associated with Debussy and Stravinsky was labeled a

---

[42] Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 203.
[43] Jean Deroux, "La Musique Polytonale," *La Revue musicale* 2:11 (1 Oct 1921): 252. Unfortunately, Deroux does not cite compositions by Les Six, Koechlin and Casella, but instead cited the arguments of others, such as Landormy.
[44] See also François de Medicis, "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s," *Music & Letters,* 86:4 (Nov 2005): 579-583.

Russian practice, unacceptable to the traditionalist aesthetic. In contrast, contrapuntal polytonality was associated with the Franckiste school. To all of the traditionalists, the Franckistes, unlike the composers associated with the Conservatoire, were considered to be forwarding the true French tradition. This classification system allowed critics to pick and choose who belonged to the new French tradition. The traditionalists acknowledged polychords, contrapuntal polytonality, and atonal principles, but interpreted them to align with the composers that they believed fell into the current French tradition, sometimes with opposing results. Prunières, for example, separated the Debussystes from the Franckistes, while de Schloezer defined composers as either French or Russian. The former believed that Russian composers influenced the French tradition while the latter did not.

Both Prunières and de Schloezer were surprisingly positive in their views of polytonality, especially considering their overall conservative viewpoint.[45] Prunières preferred contrapuntal polytonality to polychordal writing, as he believed that the latter was of best use in a unitonal context. He found examples of polychordal writing that collapsed into a single tonality on a local level in Debussy's works. In examining Milhaud's works, he noted that the chordal writing in Alissa was similar to that used in Debussy's compositions, while the contrapuntal polytonality used in Les Choèphores was similar to the counterpoint of Stravinsky.[46] While Prunières believed that polytonal textures could be used in a unitonal or polytonal manner, de Schloezer asserted that polytonality could be used in a tonal or atonal manner. This difference in interpretation affected both their explanations of polytonal music and the selection of composers who composed in tonal versus polytonal idioms. De Schloezer declared polytonality was

[45]Henri Prunières, "Darius Milhaud," *Nouvelle Revue Française* (May 1920): 763-767; and Boris de Schloezer, "Darius Milhaud," *La Revue Musicale* (1 Mar 1925): 250-276.
[46] Ibid: 763.

common in the concert hall and that most audiences did not have a problem with it by 1925. As a result, the polytonal debate was beside the point.[47]

To the traditionalists, polytonality could occur in tonal, polytonal, or atonal structures. However, de Schloezer, as stated in his definitions of these structures, clearly delineated between tonal and atonal polytonality. De Schloezer acknowledged two types of polytonal structures. First, he believed contrapuntal polytonality was the most legitimate type of polytonality. Second, he provided a broad definition for the use of polychords, which stated that polychords consisted of tones "projected over the fundamental,"[48] while contrapuntal polytonality was created by "juxtaposing two or more melody lines." He forwarded contrapuntal polytonality, based on the primacy of the melody, as seen in Milhaud's compositions. Milhaud's signature melodic style was based on the "mélos," with a "singing melody" as a source of his work. The melodic writing in the contrapuntal polytonal style was therefore considered stronger than the harmonic writing because the melodic structures could harmonically support the work. De Schloezer emphasized that the melodies that Milhaud used in the contrapuntal polytonal style were clear, recognizably tonal, and within a specific range.[49] In addition, his discussion of ostinati and pedal points furthered his preference for contrapuntal polytonality. Polychords were considered to be (poly) tonal or atonal. He primarily associated polychords with the non-tonal principles utilized by Stravinsky and contrapuntal polytonality with Milhaud (270).

De Schloezer also outlined methods of music analysis for polytonality and atonality. The results of musical analysis determined whether one's work was considered

---

[47] Boris de Schloezer, "Darius Milhaud," *La Revue musicale* (1 Mar 1925): 265.

[48] Therefore, a polychord's function was ruled by the lowest root of the grouping.

[49] Ibid: 263-64. De Schloezer's assertion for the specific ranges regarding Milhaud's melodic writing also suggests Milhaud's use of polytonal writing utilizing both modal and tonal constructs.

a part of the French tradition. Like Landormy and Koechlin, de Schloezer defined polychords as tonal or atonal through context; tonal polychords resolved into a single tonality, while atonal polychords did not resolve tonally. Contrapuntal polytonality resolved each melodic stream tonally, however, which made it superior to polychordal writing (265-66). The actual analysis of contrapuntal polytonal structures for de Schloezer was similar to Koechlin's. First, de Schloezer believed that if one took a vertical slice of a work written in contrapuntal polytonality, the result would look atonal, which is foreign to the style (267-68). Second, he believed in the existence of harmonic anchors, like Koechlin's 'jalon vertical,' within a contrapuntal context.

> The resulting aggregate sounded by these four voices alone does not possess tonal significance. However, when we listen to the end of the first part, we don't perceive it harmonically, like a chord: it seems to be only a meeting point where the four concurrent melodic streams arrive in balance; they are thus created from elements of tonal functions we already understand.[50]

The tonally functional resting points described above were analyzed in a vertical manner. However, these points of connection were crucial for creating a coherent analysis that was not solely vertically based.[51] The resting points were the scaffolding upon which the melodic lines progressed. Therefore, it was important to examine both the vertical as well as the horizontal before making analytical conclusions regarding polytonal works.

Prunières and de Schloezer provided an alternate view of the true French tradition, which was based on the mainstream views of d'Indy and the conservative

---

[50] "L'agrégation sonore resultant de la combinaison de ces quatre voix ne posède évidement aucune signification tonale; mais lorsque nous l'entendons à la fin de cette première partie, nous ne la percevons pas elle-même, harmoniquement, comme un accord: elle n'apparaît que comme le point de jonction où quatre mouvements mélodiques différents parviennent au même instant à l'équilibre; ce sont donc les functions tonales des composantes que nous saisissons." Ibid: 268.

[51] Ibid: 268. Landormy also promotes an analytical style that takes both horizontal and vertical elements into account in his 1922 article, "Musique polytonale et atonale," *La Victoire* (31 Jan 1922).

political Right. In fact, their analysis of polytonality was categorized to distinguish between the French style and foreign styles. As their own compositional views allowed Germanic influence from earlier generations of composers, they often aligned distasteful compositional practices with Russian music.[52] The common thread between all of these critics was that they aligned Debussy with a foreign tradition and Milhaud with a French one. Interestingly, Prunières is one of the first to declare Milhaud a conservative and place him within the French Franckiste tradition.[53]

> Milhaud is a conservative with a revolutionary exterior. While he disavows the tonal laws upon which traditional teaching rests, he takes chances by writing evolving parallel-superimposed melodies in different keys. I think it would equally terrify Mr. Vincent d'Indy and Camille Saint-Saëns. However, all his work shows concern regarding construction, design, and proportion that links him to the school of César Franck, d'Indy, and Magnard instead of the impressionist masters: Debussy and Ravel.[54]

Prunières, with his deep historical knowledge dating back to Lully, was unique in that, because of his broad perspective, he was able to find connections in musical style that his contemporaries might not.[55] D'Indy would not have described Milhaud's style, especially his polytonal practices, as an extension of the Franckiste tradition that he held so dear. In contrast to Prunières, de Schloezer juxtaposed French and Russian traditions,

---

[52] Jane F. Fulcher, "The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism," *The Journal of Musicology* 17:2 (Spring 1999): 204.

[53] Henry Prunières, "Darius Milhaud," *Nouvelle revue Française* (1 May 1920): 763-67.

[54] "Sous des dehors très révolutionnaires, Milhaud est un conservateur. Evidemment, il renie les lois tonales sur lesquelles repose l'enseignement traditionnel, évidemment, sa polyphonie harmonique se plaisant à faire évoluer parallèlement en des tons differents des melodies superposes n'épouvanterait pas moins, je pense, M. Vincent d'Indy que Camille Saint Saëns, mais dans toute son oeuvre se manifeste un souci de la construction, du dessin, des proportions qui rattache plutôt à l'école de César Franck, de d'Indy, de Magnard qu'à celle des maîtres de l'impressionisme: Debussy et Ravel." Ibid: 767.

[55] Prunières' perspective had an influence on many of the ensuing writings on music in Paris. Among other activities, the musicologist founded and ran the *Revue musicale* as well as its accompanying concert series beginning in 1920. Patricia Howard, "Henri Prunières" *Grove Music Online* ed. L. Macy (accessed 15 Jan 2006), <http://www.grovemusic.com>.

instead of Debussyste and Franckiste ones. According to de Schloezer, the French school wrote polytonally, while the Russians wrote in a mixture of polytonal and atonal styles. The main composers of the former included Les Six, while the latter comprised Debussy, Stravinsky, Prokofiev, and other Russian composers. Each school had its own compositional focus. De Schloezer stated that Milhaud focused on the development of music that was representative of the French school. Alternately, the Russian style of Stravinsky and Prokofiev focused on the composition of sound textures.[56] As a result, the French school was motive or melody-based, while the Russian school was texturally based. From these criteria, Debussy's style was considered Russian. So, by not writing in the style of Debussy, Milhaud founded the "true French tradition."[57]

THE ATONALISTS

While critics on the opposing side of the polytonal debate held widely differing beliefs, the overall viewpoint of the atonalists was that polytonality should be limited in use. They focused their arguments upon the definitions of polytonality and categorized its use as either a French or German practice. Belief in the polytonal system did not go along with a belief that this system should be advocated. Fernand-Georges Roquebrune and André Coeuroy can both be classified as anti-polytonalists, but adopted this stance for different reasons. For Roquebrune, the adoption of polytonality was rejected on d'Indyste principles as being a matter of bad taste. Coeuroy's denial of polytonality, however, was based on the belief that polytonality was a subset of atonality. Roquebrune's disapproval was thus based on aesthetics while Coeuroy's was based on compositional theory. Both writers ascribed the propagation of polytonality in 1920s Paris to Milhaud's influence.

---

[56] Boris de Schloezer, "Darius Milhaud," *La Revue musicale* (1 Mar 1925): 256.
[57] Ibid: 253.

While both Roquebrune and Coeuroy recognized polytonality, they defined its origins in different ways. Roquebrune defined polytonality and atonality as separate practices.[58] He argued that polytonality was derived from tonality and atonality was derived from chromaticism and whole tone scales. Although he was a proponent of the French polytonal school, he also recognized the atonal writing of its French peers. However, Roquebrune stated that Debussy and Franck were the basis for the current French atonality, while les Six were the basis for the current French polytonality.[59] Coeuroy represented an opposing viewpoint regarding the definition and use of polytonality.[60] While he provided definitions of polychords, contrapuntal polytonality and atonality, he believed that all three practices stemmed from Schoenberg's style.[61] Therefore, for Coeuroy, there were only two styles—tonal and atonal. Instead of considering polytonality an extension of tonality, he considered it to be atonal, as it weakened unitonal textures. He even went so far as to say that Milhaud also believed that the polytonal and atonal principles belonged to the school of atonal composition, albeit in a joking manner: "And Milhaud shouts, with a wink: There is no more tonality. Long live atonality (in the intermediate form of the polytonal). And from now on there are two groups of musicians: the tonal (if one may say thus) and the atonal."[62] From Milhaud's own writings on the subject, one can speculate that had he made the above statement, it had been taken out of context. Consequently, both Roquebrune and Coeuroy

---

58 Roquebrune, "La musique polytonal," *Revue critique des idées et des livres* (25 Dec 1920): 747-750.
59 Ibid: 748-749.
60 André Coeuroy, "Le Grand soir de la Musique," *Revue du mois,* 22:131 (10 Nov 1920): 354-366.
61 The French composer whom Coeuroy cites as influencing all of Les Six was Florent Schmitt. He compares a work from each member of les Six to one of Schmitt's in this article.
62 "Et Milhaud crie, clignant de l'oeil: "Il n'y a plus de tonalité. Vive l'atonal" (sous la forme intermédiare du polytonal). Et désormais il y a deux groupes de musicians: les *tonaux* (si l'on peut ainsi dire) et les *atonaux.*" Ibid: 357.

recognized polytonality, but placed it in differing contexts regarding its use as a tonal or atonal principle.

Coeuroy and Roquebrune's definitions of polytonality led them to view the practice, and the composers associated with it, with mixed results. Both authors believed that contrapuntal devices were often used to create polytonality and atonality. However, associations of specific musical practices with polytonality did not guarantee that they approved of the practice. To show their disapproval, they would align polytonality with atonality, thus negating its French influences. While Coeuroy associated polytonality with improvisatory music, Roquebrune recognized that polytonal writing often used older contrapuntal devices such as pedal points and ostinati. Coeuroy believed the principles of polytonality were sound, but relegated them as a subset of atonality instead of acting as an extension of tonal writing. He went so far as to vouch that Milhaud's improvisatory style needed to be protected against becoming atonal, as it already carried traces of Schoenberg's influence.[63] Roquebrune asserted that most of the composers of the day that were considered to be writing in a polytonal style did so in a way that often mixed polytonality and atonality. Composers cited as writing in a polytonal style included Ravel, Satie, Honegger and Milhaud, but Roquebrune discovered atonal practices in multiple works. In addition, Roquebrune discussed his views on French composers in the generation preceding Les Six. He noted atonal writing in the works of Franck and Debussy, two composers who were already firmly entrenched in the French canon; he only mentioned Schoenberg in passing.[64] Consequently, both Roquebrune and Coeuroy considered current polytonal writing to be one type of expression of atonality. While Coeuroy literally placed polytonality in the atonal realm, it is apparent from

[63] Ibid: 365.

[64] Roquebrune, "La musique polytonal," *Revue critique des idées et des livres* (25 Dec 1920): 747-748. This statement of Roquebrune's suggested that atonality was practiced in both the debussyste and franckiste schools.

Roquebrune's choice of composers and alignment of polytonality with both the Franckistes and Debussystes that he associated polytonality with atonal practices.

Roquebrune made a thorough assessment of Milhaud's use of polytonality. However, he did not easily dismiss polytonal writing, as did Coeuroy. So, Roquebrune supported polytonality in theory, but had difficulties with the style in practice, as noted regarding his comments on Milhaud's realization of the polytonal style.

> When the painter is shocked by a too precise contour, of a too clear line, he shades the outline; until now he did not try to double it with a parallel outline of equal intensity. The alteration, the complimentary stamp should remain erased, blurred, infinitely small and of the second order, in harmony with the principal line. I admit that that was not the case in the trios or quartets of Mr. Darius Milhaud's robust trombones that fought with wild energy on the same sound level, in the fugue of his symphonic suite.[65]

That Milhaud's compositions made a strong case for polytonality to Roquebrune cannot be denied. However, the writer approved of the more gentle means by which other composers achieved this style, such as pedal points used by Ravel and Satie.[66] He believed that among the multiple tonalities present in a work, one tonality should predominate over the others, to give direction and make the effect less harsh.[67] The above quote shows that Roquebrune believed Milhaud's polytonal writing was on the brink of bad taste because its effects were so strong.

65"Quand le peintre est choqué d'un contour trop précis, d'une ligne trop nette, il estompe le profil; jusqu'ici il n'a pas essayé de le doubler d'un profil parallèle d'égale intensité. La retouche, le timbre complémentaîre doivent demeurer effaces, estompés, infiniment petits du second ordre par rapport au timbre principal, à la ligne essentielle. J'avoue que ce n'était pas le cas des trios ou quatre robustes trombones de M. Darius Milhaud qui luttaient d'énergie sauvage sur le meme plan sonore, dans la fugue de sa suite symphonique." In this quote, Roquebrune was referring to Milhaud's Suite symphonique no.2, op.57, 1919 [from incid music Protée, op.17]. Ibid: 750.

66 Ibid: 749.

67 This attitude would be adopted by later theorists, such as Mawer (2000) and Kaminsky (2004), who believed in the primacy of the bass line for the construction of an analysis.

In sum, while both authors believed in the existence of polytonality, they believed it had differing functions in the 1920s Paris music scene. In order to dismiss the possibility of polytonality's high rates of dissonance, Coeuroy preferred to place it in the atonal realm for ease of analysis. Coeuroy did not have a problem with the actual style; it was just that its level of dissonance was more easily analyzed via atonal techniques. In addition, by placing the polytonal composers of the day into the atonal realm, Coeuroy could dismiss them as not belonging to the true French tradition. In contrast, Roquebrune acknowledged the inroads that polytonality had made into the music of the day, but he thought the style was too jarring to the ear. Consequently, Roquebrune's call for a simpler, more consonant polytonal style aligned him with d'Indy, who had started the debate by asserting that polytonality was not in good taste.

CONCLUSION

The rampant debates on polytonality and its place within the French tradition during the 1920s extended schools of thought that were present before World War I. The polytonalists divided contemporary musical composition into three categories with the first representing tonality, the second polytonality, and the third atonality. Polytonality was considered to be an extension of tonality and therefore functioned under previously established tonal laws regarding melody and harmony. The polytonalists active in the debate included: Paul Landormy, Jean Deroux, A. Febre-Longeray, Boris de Schloezer, and Charles Koechlin. The traditionalists and atonalists simplified matters: Either one wrote unitonal music or one did not, which meant that both polytonal music and atonal music were both considered to be atonal. The traditionalists thought polytonality was viable, but favored limited polytonal writing, sometimes eschewing the subject by merely discussing the ramifications of polytonality instead of its construction. The atonalists

asserted that polytonality existed, but that it was clearly an atonal practice. The difference between the traditionalists and the atonalists was in how they interpreted tonality (and as a result, polytonality): the traditionalists viewed atonality and polytonality as a negative influence on current French music, while the atonalists viewed it as a positive one. Traditionalists active in this debate included: Vincent d'Indy, Émile Vuillermoz, Henry Prunières, and Georges Migot, while the atonalists in this debate consisted of André Coeuroy and Fernand-Georges Roquebrune. Although the traditionalists were primarily aligned with d'Indy, they may have held either the Debussyste or the Franckiste point of view, depending on how they interpreted polytonality. The atonalists' views were also split, and can be loosely aligned with either the polytonalists or the traditionalists. Overall, they were more philosophically aligned with the polytonalists because they adopted newer musical styles. However, they interpreted and defined these styles differently than the other two groups.

By examining the arguments presented in the Parisian polytonal debates of the 1920s, one can better understand the prevailing views on polytonality when Milhaud published his 1923 article "Polytonalité et atonalité"[68] and came to the forefront in Parisian circles for composing in a polytonal style. As Milhaud had been composing polytonal music since the mid-teens, his works provided one of the focal points of the debate. Thus, it is imperative to have an understanding of the prevailing Parisian schools of thought on the subject.

[68] Darius Milhaud, "Polytonalité et atonalité," *Revue Musicale,* 2:4 (1923): 29-44.

Chapter 2: Milhaud's Polytonality

Milhaud strove to educate his contemporaries and audiences on the differences between polytonality and atonality. After establishing a clear dividing line between them, Milhaud made arguments to establish his music as a link to a French musical tradition. For Milhaud, polytonality was based on diatonicism and atonality on chromaticism. The former was a development of the Latin school, while the latter was a progression from the Germanic school.[69] (Milhaud placed the French and Italian traditions in the Latin School and the Germanic traditions in the German one.) During the early 1920s, Milhaud's views on polytonality were disseminated through numerous articles in the music journals and in his weekly contributions to Le Courrier musical. Jeremy Drake has stated that Milhaud's writings from the early 1920s "are crucial to an understanding of his musical aesthetic."[70] This chapter illustrates how Milhaud defined polytonal writing by studying the interviews that established his general beliefs on the subject and by performing a detailed analysis of both articles he wrote defining polytonality and the compositional methods he used to compose in this style.

According to Drake, Milhaud's first extant essays date from 1920.[71] Milhaud produced his most significant writings during the 1920s; his later articles mostly pay homage to other composers. During this earlier, productive period, Milhaud wrote at

---

[69] Milhaud took care to discuss two separate traditions to which he belonged, those being the French and the Latin traditions. While he did not cite composers specific to the Latin tradition, one may surmise that this tradition would include composers of French, Italian, and Spanish lineage. Regarding an Italian branch of this Latin tradition, Milhaud's mother, Sophie Allatini, was Italian and one of the other foremost polytonal composers of the teens was Alfredo Casella, who was also a friend of Milhaud's teacher, Charles Koechlin.

[70] Jeremy Drake, "Darius Milhaud," *Grove Music Online,* ed. L. Macy (accessed 13 Dec 2005), <http://www.grovemusic.com>.

[71] Jeremy Drake, introduction to *Notes sur la musique: Essais et chroniques* by Darius Milhaud (France: Flammarion, 1982): 9.

least twenty articles in addition to his weekly articles for the Courrier musical. Some of the compositions that define his mature style were completed in the years preceding both his article, "Polytonalité et atonalité" (1923) and the ballet La Création du monde (1923). These included Les Euménides (1917-1922), Les Choéphores (1915-1916), the ballet L'Homme et son désir (1918), and the well-known Saudades do Brazil (1920-1921). The work of Milhaud's interviewers and biographers has become an invaluable resource for the analysis of the composer's inspirations and musical style. Even Milhaud noted that Paul Collaer's assessment of his music usually echoed his musical thoughts.[72] In addition, Claude Rostand's eighteen interviews with the composer in the 1950s give one a clear assessment of Milhaud's musical opinions.[73]

The seed of Milhaud's mature polytonal style was planted in his childhood home at Aix. Milhaud had dreamt of polytonal music since his teen years and strove to make that music possible:

> After finishing my studies, I truly heard what I had created in pursuing my polytonal research where each melodic line unfolded tonally without chordal counterpoint. I thought it was not that good. However, I suddenly realized: I had gotten a glimpse of the music that I had dreamt about when I was fourteen, which I heard resonate at night to the depths of my soul.[74]

From his childhood dreams of polytonal textures emerged a systematic study of polytonality, with the works of Bach, Koechlin and Stravinsky as inspiration. Milhaud

---

[72]Darius Milhaud, *My Happy Life,* trans. Donald Evans, George Hall and Christopher Palmer (London: Marion Boyars, 1995): 104. [N.B. – Noted in the English edition only.]

[73] Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952).

[74]"Toujours est-il que ce n'est que bien plus tard, lorsque j'eus fini mes etudes, en entendant ce que j'avais écrit après avoir poussé mes recherches polytonales dans lesquelles la liberté tonale des lignes mélodiques se déroule sans un contrepoint d'accords, c'est à ce moment-là que j'ai tout à coup realize: alors je me suis apercu que c'était là la musique à laquelle je rêvais à quatorze ans, et que j'entendais la nuit résonner au fond de moi-même." Ibid: 26. Milhaud also details this process in his biography, *Ma Vie Heureuse* (Paris: Belfond, 1987): 59-60. He also notes that his teacher Gédalge asserted the primacy of melody and said, "Write just eight measures that one can sing without accompaniment." This sentiment is also echoed in Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982): 66-67.

esteemed Bach for the value he placed on each line in a contrapuntal texture, while in Koechlin and Stravinsky he explored "chords containing multiple tonal centers and also those featured in chordal counterpoint."[75] Milhaud answered Rostand's question regarding the origin of his "supermultiplied" harmony of chords in two or three keys by stating that he first explored the concepts of polychords and their effects at the piano, where he discovered "…that a polychord is much more subtle when played softly and much more violent when played loudly than are similar [tonal] combinations of notes."[76] Milhaud also affirmed that while Stravinsky's works inspired some of his own, such as Les Choéphores, his study focused more on Stravinsky's polychordal textures, while Bach's music provided Milhaud with the inspiration for his own linear contrapuntal polytonality.[77] Collaer asserted that Milhaud's melodic writing differed from Stravinsky's rhythmically driven writing as Milhaud's melodic writing provided the foundation for polytonal textures. Thus, if Milhaud had changed his melodic style to be more rhythm-based like Stravinsky's, the polytonal element would have been sacrificed. In Collaer's view, Milhaud avoided the heavily accented and rhythmically complex rhythms of Stravinsky in order to preserve clarity in his contrapuntal style of writing in several concurrent streams.[78]

Koechlin, one of Milhaud's teachers at the Conservatoire, influenced Milhaud's study of polytonality. In Rostand's interviews, Milhaud outlined Koechlin's method of polytonality versus his own compositional style in the following manner:

---

[75]"…accords contenant plusieurs tonalities, ou même d'accords traits en contrepoint d'accords," Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952): 28-30.

[76] "…qu'un accord polytonal est beaucoup plus subtil dans la douceur, et beaucoup plus fort dans la violence qu'une aggregation tonale." Ibid: 30-31.

[77] Ibid, 51-52. Milhaud also notes this admiration in *Ma Vie Heureuse*, noting that although his generation esteemed Stravinsky for making a break with the musical past of the classical tradition, Stravinsky's style was essentially Russian and therefore foreign to them. Milhaud did not 'aspire' to write in the Russian tradition, but in the French one. Darius Milhaud, *Ma Vie Heureuse* (Paris: Belfond, 1987): 54.

[78] Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982): 84.

> It was when Sacre premiered, that beneficial hurricane which distressed and threatened the style of our elders by brushing aside impressionism, that my contact with Koechlin became important to me. He pushed his harmonic research to the limit. If one looks at his third set of songs, it is impossible to not be struck by the natural sense of complexity present in his polytonal writing. However, his basis of polytonality is derived from prolonging the notes of the chords beginning with the 9th to the 11th, to the 13th, to the 15th, etc… I preferred to create from a different basis, through separating all the different ensuing tonalities that are found in a six-five chord. That's my point of departure.[79]

Milhaud had studied Koechlin's works while at the Conservatoire. After seeing Stravinsky's Sacre du Printemps in 1913 he went on to study the score with Koechlin in 1914, near the end of his formal studies.[80] His friendship with Koechlin led him to begin his own study of polytonality in 1915.[81] To this end, while both Milhaud and Koechlin used polychords, Milhaud's study of Koechlin's work led him to derive those chords and textures differently than his teacher. While Koechlin's structures were based on extended tertian chords functioning as a triad with multiple roots, Milhaud's structures were based on a first inversion seventh chord (i.e. a $^{6}_{5}$ chord). While this gave him a choice of

---

[79] "C'est justement au moment du *Sacre*, dans le désarroi que cette oeuvre a cause chez nos aînés, alors que nous la considérions comme un ouragan bienfaisant balaynt les restes impressionnistes, que la frequentation de Koechlin me fut précieuse. Il avait poussé très loin les recherches harmoniques. Si on regarde son troisième recueil de melodies, on ne peut pas ne pas être frappe par son sens naturel de la complexité qui about il polytonalité. Mais il me semble qu'il y about il par continuation des notes prolongeant les accords de base passant de la 9e à la 11e, puis à la 13e, à la 15e etc… Pour moi j'ai préféré partir d'une base différente, et dissocier tout de suite les tonalities différentes qui peuvent déjà se trouver dans un accord de quinte et sixte. C'était là ma base de depart à cet égard." Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952): 54. Also see Christopher Palmer, introduction to *My Happy Life*, by Darius Milhaud, trans. Donald Evans, George Hall and Christopher Palmer (London: Marion Boyars, 1995): 14-15. In addition, Collaer asserted that Koechlin directly influenced Milhaud, as evidenced in the former's *Traité d'harmonie.* However, Collaer was more conservative in his assessment of Milhaud's early influences, limiting them to Koechlin and Stravinsky, even though he also asserts the importance of Gédalge as Milhaud's instructor. Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982): 61, 73.

[80] Jeremy Drake, "Darius Milhaud," *Grove Music Online,* ed. L. Macy (accessed 13 Dec 2005), <http://www.grovemusic.com>.

[81] Darius Milhaud, *Ma vie heureuse* (Paris: Pierre Belfond, 1987): 59.

multiple classes of seventh chords with which to work, the overall difference was the same: originating a polytonal structure on either the vertical or horizontal from a four note tertian chord allowed for a total of eight tonal roots, with the third as the most common relationship between keys.[82]

Milhaud's concepts of polytonality and atonality were further clarified in his assessment of the Second Viennese School and its use of atonality:

> What had especially interested me in these small works for piano was their freedom from tonality. That really fascinated me, even though I did not feel at home in that musical universe that resulted primarily from German chromaticism. I felt I belonged to the Latin tradition, which seems to me not to evolve from chromatism to atonality, but from tonality to polytonality.[83]

Although Milhaud appreciated these free atonal compositions, he viewed them as a progression from Wagner, whose music he disliked. As Milhaud identified himself as a "Frenchman from Provence who is Jewish"[84] it would not strengthen his position as a composer in the French tradition to adopt this compositional style. In interviews with

---

[82] These possibilities are discussed in detail in Milhaud's 1923 article, "Polytonalité et atonalité," *Revue Musicale,* 2:4 (1923): 29-44, and will be discussed later in the chapter. Regarding the particular quote above, if one has a seventh chord and creates both a major or a minor triad from each note of said chord, one ends up with eight possible keys from which to create a polytonal structure, with four being major keys and the other four minor ones. One of the main relationships between roots derived from a seventh chord would be major or minor thirds, and it is this relationship that confuses many analysts regarding analysis of a work as tonal, polytonal, or atonal. Different scholars have used one or a combination of viewpoints to analyze Milhaud's music in this style, and this is the focus of Chapter 3.

[83] "Ce qui m'avait surtout intéressé dans ces petites pieces pour piano, c'était la liberté dont cette musqiue témoignait à l'égard de la tonalité. Cela me fascina réellement, encore que je ne me sentisse pas chez moi dans cet univers sonore issu essentiellement du chromatisme germanique, alors que, moi, je me sentais appartenir à la tradition latine qui me semble aller non pas du chromatisme à l'atonalité, mais de la tonalité à la polytonalité." Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952): 144-145.
This concept is also reinforced by Paul Collaer's assessment of how the German versus the French schools addressed the limits of polytonality, with the former moving into atonality and the latter adopting a style of music with concurrent multiple tonal streams. Paul Collaer, *Darius Milhaud,* (Paris: Editions Slatkine, 1982): 72. Milhaud also voices these same sentiments in his biography, *Ma Vie Heureuse.*

[84] "Je suis un Français de Provence et de religion israélite." Darius Milhaud, *Ma vie heureuse,* (Paris: Pierre Belfond, 1987): 9. Milhaud's dislike of Wagner is noted in multiple sources, including Claude Rostand's *Darius Milhaud: Entretiens avec Claude Rostand,* (Paris: René Julliard, 1952): 43-47.

Rostand, he noted that Latin composers did use atonal means of composition, but that most of the French composers who did so produced works that sounded like "distorted" versions of compositions by Roussel or Ravel.[85] In other words, Milhaud heard French atonal music as a chromatic alteration of romanticism.

The delineation between the modern French and German styles of composition was crucial to Milhaud's place in the French tradition. His advocacy of polytonality as the new French style was based in part on the fact that it could hold its own against the atonal style of the Germans. Milhaud's article, "The Evolution of Music in Paris and Vienna," focused on the nationalistic qualities of polytonality and atonality without going into the compositional principles of either style. This article made a clear distinction between each style's lineage.[86]

In "The Evolution of Music in Paris and Vienna," Milhaud noted that the French and German schools of composition had lead to the style of Satie versus the style of Schoenberg. Followers of the former included Poulenc and Auric, while followers of the latter included Webern and Berg. Milhaud states that the goals of Satie and Les Six were to reinstitute a French national music, while the composers of the Second Viennese School, inspired by the works of Mozart and Schubert, strove to bring clarity to their music. According to Milhaud, the characteristics necessary for a French national music included, among other things, clarity, design, and simplicity. Composers who fit his musical criteria, and could therefore be considered stylistic masters, included Couperin, Rameau, Berlioz, Chabrier, Bizet, Debussy, Fauré and Satie.[87]

---

[85]Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952): 151.
[86] Darius Milhaud, "The Evolution of Modern Music in Paris and Vienna," *North American Review* (Apr 1923): 544-554. In addition, Barbara Kelly has studied the writings of Milhaud and reconstructed Milhaud's personal canon. Barbara Kelly, *Tradition and Style in the Works of Darius Milhaud, 1912-1939* (England: Ashgate Publishing, Ltd., 2003): 27-44.
[87]Darius Milhaud, "The Evolution of Modern Music in Paris and Vienna," *North American Review* (Apr 1923): 546.

Although his feelings about the Second Viennese School were neutral, Milhaud posited that there were multiple threats to the French tradition active in Paris. These anti-French influences were based on the works of Wagner and members of the Russian Five (specifically, Rimsky-Korsakov). He elaborated upon this viewpoint by stating that the orchestration style of Rimsky-Korsakov influenced the Debussystes, thus leading to the new Russian school, which was marked by the premiere of Stravinsky's Rite of Spring in 1913. In addition, Milhaud averred that there was also a negative French tradition, based on those composers who followed the compositions of César Franck. He stated that the Franckistes were depressing, too serious, and admitted Wagnerian influences. He associated this style with the Schola Cantorum.[88]

In her recent work on Milhaud, Barbara Kelly affirms the composer's sentiments regarding musical tradition. According to her studies, Milhaud's canon outlined both positive and negative foreign influences on the French tradition. This attitude explains why Milhaud based the origins of his polytonal studies on the works of Bach. For example, for Milhaud positive foreign influences from the past included Scarlatti, Bach, and Gluck, while positive contemporary influences included Verdi, Stravinsky, jazz, and Brazilian music. Negative influences included Wagner, Franck, and the Schola Cantorum, the same trinity mentioned in "The Evolution of Music". According to Kelly, primary composers in Milhaud's French canon included Costeley, Couperin, Rameau, Berlioz, Gounod, Bizet, Chabrier, Debussy, and Satie. Secondary composers of the canon included Fauré, Magnard, Koechlin, Poulenc, Auric and Sauget.[89] In article "The Evolution of Music in Paris and Vienna," Milhaud defined Rameau, Berlioz, Bizet and

[88]Ibid: 547-48.
[89] Barbara Kelly, *Tradition and Style in the Works of Darius Milhaud, 1912-1939* (England: Ashgate Publishing, Ltd., 2003): 34-35.

Chabrier as his French lineage. The Germans' lineage, he wrote, originated from Wagner and was present in the works of Schoenberg, Wellesz, Berg, and Webern.[90]

Thus, Milhaud's alignment of polytonality with French national qualities and atonality with German ones made the need for a clear definition of each tradition crucial. Milhaud saw polytonality and atonality as different techniques; as he stated, "Diatonism and chromaticism are the two poles of musical expression. One can say that the Latins are diatonic and the Teutons chromatic" (551). He continued by defining polytonality as contrapuntal polytonality, where melodic lines in different keys are juxtaposed, and atonality as using the chromatic scale for its melodic writing (551). Because they had different styles, Milhaud was able to link the new styles of polytonal and atonal writing to earlier traditions of French national music and Wagnerism, respectively. "Polytonality (the logical consequence of diatonism), and atonality (the logical consequence of chromaticism) are not new systems opposed to the fundamental principles of music," he wrote (553). However, after making this statement at the height of the polytonal debates, it was necessary for Milhaud to outline the principles of each system in detail to support his view of the polytonal style as a valid one, regardless of tradition.

Milhaud's definitions of tonality, atonality, and polytonality were crucial for two reasons. First, Milhaud viewed his own polytonal style as an extension of the Latin tradition. Second, in order to substantiate this lineage, Milhaud had to become an influential voice regarding the definition of polytonality and atonality. Milhaud's work was not without precedent, as Parisian composers and critics had been debating both the definition and the methods used for polytonality since 1917. The debate came to a crux in 1921, with Jean Deroux's article "La Musique polytonale," which summarized many of

[90] Darius Milhaud, "The Evolution of Modern Music in Paris and Vienna," *North American Review* (Apr 1923): 551-53. Notations in parentheses in the text refer to page numbers of this article until stated otherwise.

the previous opinions of the debate and averred that polytonality in the style of Milhaud and "Les Six" should be considered a separate practice from the atonality practiced by the Second Viennese School.[91]

Milhaud continued his argument in two articles that outlined the definitions and compositional procedures for polytonality and atonality. The first was a short article entitled "La Mélodie", which appeared in both Le Courrier musical and Melos in 1922.[92] This article provided clear definitions for both polytonality and atonality, and their respective schools. However, no discussion of polytonality regarding twentieth-century music would be complete without a discussion of Milhaud's landmark article "Polytonalité et atonalité", first published in the April 1923 issue of the Revue musicale.[93] The expansion of Milhaud's ideas about polytonality in this article still affects current scholarship on his compositional style.[94]

Milhaud's article "La Mélodie" offered the composer's initial response to the polytonal debates. First, he found it necessary to provide concrete definitions of polytonality and atonality in order to clear up the confusion created by previous articles. Milhaud ascribed the use of polytonality or atonality not to the chords present in a texture, but to the primacy of the melody as the driving force of contemporary music. In other words, good melodic writing expressed diatonicism in tonal compositions and chromaticism in atonal compositions.

---

[91] Jean Deroux, "La Musique Polytonale," *Revue musicale* (Oct 1921): 251-257. The debate leading up to and following Milhaud's article was discussed in Chapter 1. Some of the authors Deroux took into account included André Coeuroy, Paul Landormy, Mr. Roquebrune, and Emile Vuillermoz.

[92] Darius Milhaud, "La Mélodie," *Le Courrier musical* 24:17 (15 Aug 1922): 327; *Melos,* 3 (1922): 195-198. N.B. I will be citing this article from its publication in *Melos.*

[93] Darius Milhaud, "Polytonalité et atonalité," *Revue musicale* 2:4 (1923): 29-44.

[94] For current scholarship on Milhaud's polytonality, please see Chapter 3.

> One type of musician naturally expresses himself through melodies based on chords that obey the laws of diatonic harmony and does not utilize chromatic melodies unless as a conscious exception; another type writes a melodic line which employs any note of the chromatic scale, thus escaping tonal feeling. These essential differences that are derived from an artist's temperament determine the two great systems for the expression of musical thoughts: tonality and polytonality on one hand, and atonality on the other.[95]

Consequently, allying diatonicism with polytonality and chromaticism with atonality separated French music from German music. Stating that a polytonal piece of music had tonal centers while an atonal work did not, however, was not a strong enough criterion. The issue of chromaticism also needed to be addressed:

> A diatonic melody or an ensemble of polytonal melodies may be juxtaposed with a chromatic harmony. However, the melody takes precedence and the chromaticism will be heard as passing notes, without importance, therefore retaining the tonal feeling that presides throughout the chord progression. While it often forms aggregates of notes that are foreign to the general tonality, the diatonic melody provides a definite tonality, which is essential.[96]

In the above quote, Milhaud established that the materials of a musical composition were not identical to the goals of a composition, whether that goal was tonality on the one hand, or atonality on the other. Therefore, chromaticism served opposing functions in

---

[95]"Tel musician s'exprimera naturellement au moyen de melodies reposant sur les accords qui obeissent aux lois de l'harmonie diatonique et ne se servira de melodies à son service une ligne mélodique qui emploiera n'importe quellenote de la gamma chromatique et échappera ainsi au sentiment tonal. Ce sont ces differences essentielles qui viennent du temperament personnel d'un artiste qui ont determine les duex grands mouvements d'expression de la pensée musicale: la tonalité et la polytonalité d'une part, l'atonalité de l'autre." Darius Milhaud, "La Mélodie," *Melos* 3 (1922): 195.

[96]"Une mélodie diatonique ou un ensemble de melodies polytonales justaposées pourront reposer sur une realization harmonique chromatique. Mais l'élément mélodique l'emportera et le chromatisme qui le soutiendra n'aura pas plus d'importance que les notes de passage qui en harmonie par exemple ne détruisent pas le sentiment tonal qui preside à l'enchainement de plusieurs accords tout en formant souvent des aggregations de notes qui échappent à la tonalité générale, la mélodie diatonique appliquant d'elle meme une tonalité définie qui s'impose." Ibid: 195.

polytonal versus atonal music. In polytonal music, chromaticism flourished as a surface level structure, while in atonal works chromaticism was considered to be part of the background structure. Even so, it was necessary for Milhaud to identify both the foundations and the means of the two styles in order to show how each developed into its own distinct genre of composition. He does in the following two quotes. The first concerns establishing a systematic theory for both styles, while the second concerns the sources of polytonality. Both statements show that, while both polytonality and atonality were derived from the major/minor system, their development was based on dramatically different results. Polytonality was based on French romanticism, while atonality was based on Wagnerian romanticism:

> Polytonality and atonality are not new systems in opposition to the fundamental principles of music, as has often been said. On the contrary, they are the logical development of these principles and one should include a study of their technique that complements the treatises of harmony, counterpoint, and fugue employed by music schools.[97]

From about 1917, Milhaud, drawing on the traditional study of counterpoint and fugue, was able to put a signature stamp on his mature style. By placing polytonality as the direct descendant of counterpoint, Milhaud made yet another argument for establishing himself in the French tradition. Like the polytonalists, he cited multiple devices that lent themselves to polytonality, which either affected polychordal or contrapuntal polytonal writing:[98]

---

[97]"La polytonalité et l'atonalité ne sont pas des systèmes nouveaux en opposition avec les principes fondamentaux de la musique, comme on l'a trop souvent laissé dire. Ils sont au contraire le développement logique de ces principes et devraient comporter une etude de leur technique qui serait un complement auxtraités d'harmonie contrepoint et fugue employés par les écoles de musique." Ibid, 195-196.

[98]In the *Revue musicale* article of the ensuing year, Milhaud would expand and modernize these means to four by adding jazz-based harmonies to his methods of polytonal writing.

> It is easy to find the sources of polytonality: from the harmonic point of view, they are found in passing notes, unresolved appoggiaturas, and foreign notes of chords that one can consider as members of another chord. From the contrapuntal point of view polytonality may be derived from canons other than at the octave...[99]

So, non-chord tones were generally associated with polychords, and included passing tones, unresolved appoggiaturas, and foreign tones. Variations in canonic writing explained the origins of contrapuntal polytonality. Many of the critics who disagreed with Milhaud believed that polychordal writing only existed within a monotonal texture, and cited the extensions of non-chord tones as the basis for this view.

Milhaud's 1922 article "La Mélodie" allowed the composer to publicly state his tonal aims in response to the polytonality debates that had begun in 1917. Nonetheless, the composer knew that in order for his claims to gain legitimacy, he would need to first expand his thesis, include examples from the literature, and, finally, provide compositional methods that, along with traditional studies of harmony and counterpoint, might be adopted for study. Milhaud continued his argument with "Polytonalité et atonalité," which was published in La Revue musicale the following year.

"Polytonalité et atonalité" was an important contribution to the polytonal debate for two reasons. First, Milhaud distinguished between polytonality and atonality through concrete definitions of each practice. He supported these distinctions by a making a thorough, and never before attempted, survey of examples. Second, Milhaud outlined how polytonality or atonality was created by three different types of composition: through the use of polychords, through contrapuntal polytonality, and through chromatic

---

[99]"Il est facile de trouver les sources de la polytonalité: au point de vue harmonique, dans les notes de passage, les appogiatures non résolues, les note étrangères aux accords dont elles font parite et qu'on peut considerer comme appartenant à un autre accord; au point de vue contrapuntique dans l'emploi des canons autres qu'à l'octave…" Ibid: 196.

atonality. While previous authors had distinguished between polytonality and atonality, detractors of polytonality generally viewed both types of writing as derived from the same source: chromaticism. So while authors distinguished Milhaud's practice from that of Schoenberg or even Stravinsky, they asserted that any type of writing that was not unitonal should be considered atonal.[100]

Milhaud was able to differentiate between polychords, contrapuntal polytonality, and atonality by using concrete musical examples because he had been methodically experimenting with polytonality since 1915.[101] "Polytonalité at atonalité" documents the results of his research, presenting not only a more complete theory of polytonality, but also citing methodologies used by himself and his contemporaries to compose polytonal music. Previously, authors cited Milhaud as the ringleader of les Six and asserted that Milhaud and his contemporaries were the only composers using contrapuntal polytonality.[102] "Polytonalité at atonalité" assigned polytonality and atonality to their separate but equal realms of musical practice on a large scale. Milhaud's argument was supported by the citation of polytonal methods used by both the preceding generation and current composers not associated with les Six. These composers included, among others, Milhaud's fellow countrymen Debussy, Ravel, and Roussel in addition to contemporaries such as Bartók and Stravinsky. Some of the composers listed above ended up in both camps, with Satie and Poulenc placed on the polytonal side and Honegger placed on the atonal side. In addition, Milhaud's article provided musical evidence for how each system functioned by offering compositional strategies, which had not previously been discussed in the polytonal debate. The introductory section of

---

[100] One example of this argument is found in André Coeuroy, "Le Grand Soir de la Musique," *Revue du Mois* 22 (10 Nov 1920): 354-366.

[101] Darius Milhaud, *Ma vie heureuse,* (Paris: Pierre Belfond, 1987): 59.

[102] As found in, among others, Paul Landormy's articles regarding polytonality. See Paul Landormy, "Le Déclin de l'Impressionisme," *La Revue musicale* 2:4 (1 Feb 1921): 97-113.

"Polytonalité et atonalité" yet again made the point of using tonal centers as a litmus test for determining polytonality or atonality. The rest of this chapter will focus on compositional methods that Milhaud provided to create polytonal textures, followed by Milhaud's analysis of an excerpt from one of his own polytonal works.

In "Polytonalité et atonalité," Milhaud cited three main methods that provided polytonal compositional possibilities. These were derived from canonic writing, non-chord tones, and altered chords, thus expanding upon ideas from the previous year's "La Mélodie". Milhaud asserted that each method provided a means for utilizing traditions of the past to create polytonal compositions. First, using the Bach Duetto in F Major, BWV 803, he discussed the possibility of multiple linear harmonizations in baroque forms, such as the canon. Next, opportunities for multiple concurrent harmonizations were derived from decorations, such as appoggiaturas and passing tones. The third means of creating a polytonal texture came through the use of foreign-note chords. In "La Mélodie," Milhaud limited these chords to those common to romanticism. With "Polytonalité et atonalité," Milhaud expanded the classes of foreign-note chords to include the use of jazz-inspired chords. Specifically, he discussed added-note chords, such as the chord of the added sixth, which is also commonly used in jazz. Milhaud had little to say regarding pedal points and polytonality, mainly noting that chords conflict with a pedal point in both monotonal and polytonal compositions.

Milhaud covered two important concepts regarding the selection and combination of keys. He first provided a methodology for combining two, three, or more keys and the resulting possibilities of key combinations and modulations. He then discussed established methods for composing with polytonal materials, using musical examples from the works of composers, including Stravinsky, Roussel, Debussy, Bartók, Ravel, Koechlin, and himself. Milhaud's analysis of his own polytonal excerpts provides

current scholars with additional information regarding the composition and analysis of the composer's works.

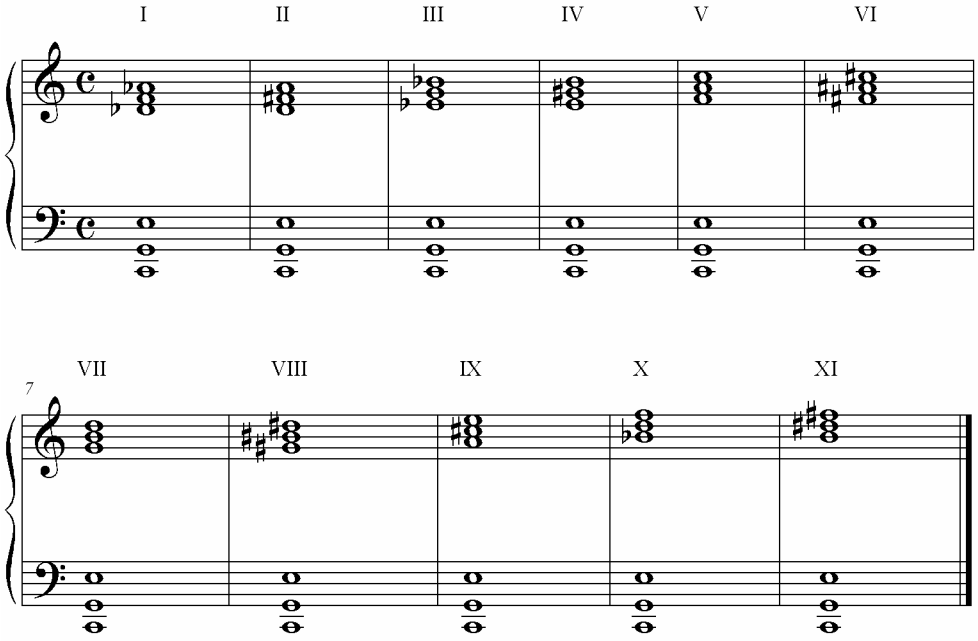
In order to assert that polytonality and atonality were composed by using different methods, it was necessary to show how one could write a work based on multiple concurrent key relationships. Therefore, Milhaud began his argument by outlining all of the possible triad combinations if one expressed a single set of variables. In this case, he began with combinations of all sets of two major triads, with C major as the control. The following example combines the C major triad with the eleven other major triads. While every root combination is expressed in this example, Milhaud provided no specific method for choosing a preferred set of keys. As Milhaud did not provide a hierarchy of keys in any of his articles on polytonality, this has led to a plethora of analytical styles in the work of current scholars, placing their own hierarchies over Milhaud's basis.[103] Milhaud labeled each triad combination with roman numerals from I to XI, as seen below in Example 2.1. This example shows that the composer viewed the half-step relationship between C major and Db major as the Neapolitan, while the relationship between C major and B major suggests opposition between the tonic and leading tone of a single key. There are exceptions: one cannot tonicize the leading-tone, unless it is altered, as in B major. Milhaud therefore designated each of these polychords by separate roman numerals. Scholars often use this evidence to state that the bass should be more highly prioritized in a graphing sequence, but Milhaud showed the example in this manner for ease of clarity, not necessarily to discuss the role of the bass.[104]

---

[103] These scholars include Deborah Mawer, Pater Kaminsky, and Virginia Yvonne Cox, among others, and will be discussed in Chpater 3.

[104] In current scholarship see the differing approaches of Deborah Mawer in *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997); Peter Kaminsky in "Ravel's Late Music and the Problem of "Polytonality,"" *Music Theory Spectrum* 26:2 (Fall 2004): 237-264.

Example 2.1 – Milhaud's Bitonal Combinations of Major Triads (32)

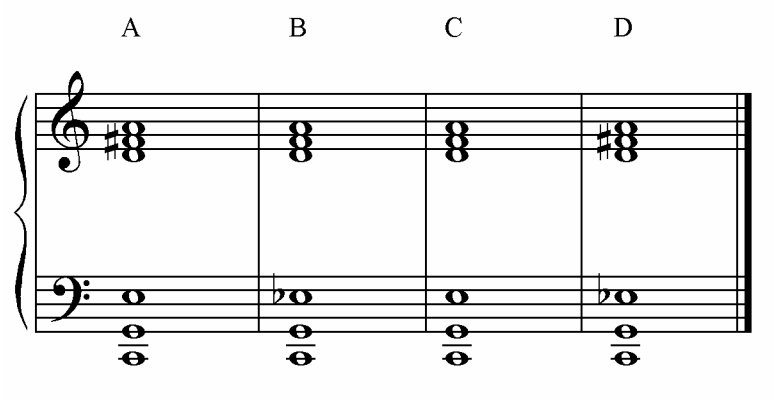


Within each of these eleven combined triads, there were four possible interpretations, which Milhaud showed in the following example. As the complete combination of key roots only showed combinations of major keys, it was necessary for Milhaud to break down the four results one would obtain if utilizing the major-minor system. Therefore, the composer expanded his example to show the major and minor combinations for a single set of chord roots. Example 2.2 illustrated four possible subsets for a combination of two triad roots. Milhaud combined major and/or minor triads in this example, as each pair of triads represented possible key areas. In these two examples, Milhaud's goal was to combine the tonic triads of multiple keys, in order to illustrate the potential triad combinations.[105] Consequently, the composer only provided combinations of major and

[105] Discussion of Milhaud's chosen polytonal examples will be discussed after presenting his theory categorization of triad combinations.

minor triads, instead of expanding this definition to include augmented and diminished ones (32). The first contemporary musical example Milhaud provided as a demonstration of polytonality was Stravinsky's Petroushka Chord, which was derived from the superimposition of C major and F# major triads. With this example, Milhaud sought to prove that opposing tonalities related through even the most distant relationships could, because of their multiple tonal centers, be considered polytonal, rather than atonal (33).

Example 2.2 – Milhaud's Root Combinations for Bitonal Textures (33)



Milhaud expanded his thesis by applying the principles of bitonal key combinations to polytonal textures in three keys. With the addition of a third key, triad combinations were drastically expanded. Whereas combining two major triads produced eleven bitonal combinations, three major triads produced fifty-five tritonal combinations, as in Milhaud's Example 2.3 below.

Example 2.3 – Milhaud's Root Combinations for Tritonal Textures[106]

C-Db-D	***C-Db-Eb***	***C-C#-E***	***C-Db-F***	***C-Db-Gb***	***C-Db-G***	***C-Db-Ab***
C-D-Eb	***C-D-E***	***C-D-F***	***C-D-F#***	***C-D-G***	***C-D-G#***	***C-D-A***
C-Eb-E	***C-Eb-F***	***C-D#-F#***	***C-Eb-G***	***C-Eb-Ab***	***C-Eb-A***	***C-Eb-Bb***
C-E-F	***C-E-F#***	***C-E-G***	***C-E-G#***	***C-E-A***	***C-E-A#***	***C-E-B***
C-F-F#	***C-F-G***	***C-F-Ab***	***C-F-A***	***C-F-Bb***	***C-F-B***	
C-F#-G	***C-F#-G#***	***C-F#-A***	***C-F#-Bb***	***C-F#-B***		
C-G-G#	***C-G-A***	***C-G-Bb***	***C-G-B***			
C-G#-A	***C-Ab-Bb***	***C-G#-B***				
C-A-Bb	***C-A-B***					
C-Bb-B						
C-Db-A	***C-Db-Bb***	***C-Db-B***				
C-D-Bb	***C-D-B***					
C-D#-B						

There were now eight modal combinations for each of these fifty-five combinations. Milhaud discussed the ramifications of combining the three major triads C, Db, and D,

106 Ibid: 36. N.B. The author has altered this chart from Milhaud's original by using letter names for the pitches instead of fixed-do solfege.

listed as Group 1 in Example 2.4. If one took just the three major triads of C, Db and D and combined them, one would not only have these major and minor triads. One would also have, through the use of the available notes from these three triads, including enharmonic tones, another seven triads.[107]

Example 2.4 – Milhaud's Key Combination Chart for Trichordal Textures (37)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
3rd Triad	***Major***	***minor***	***Major***	***minor***	***Minor***	***minor***	***Major***	***Major***
2nd Triad	***Major***	***minor***	***minor***	***Major***	***Minor***	***Major***	***minor***	***Major***
1st Triad	***Major***	***minor***	***minor***	***minor***	***Major***	***Major***	***Major***	***minor***

The resulting triads would comprise F major, F minor, F# minor, A minor, A major, Db minor, and D minor. Milhaud described the result in the following manner:

> One must note that the wealth of these chords is immense. In a single chord of three triads we discover seven other triads. We imagine an unlimited study of tonal superimpositions derived from the object as a supply for a harmony treatise that serves as a base of study for different schools of music.[108]

[107] Thus, the available pitches were C, Db, D, E, F, F#, G, Ab, and A, which comprise nine of the twelve available pitches of the chromatic scale.

[108] "La richesse de ces accords est, comme on le voit, immense: déjà dans un accord de trios tons nous découvrons sept autres tons exprimés: Nous pouvons imaginer à l'infini l'étude des superpositions tonales qui devraient faire l'objet d'un supplement pour les traits d'harmonie qui servent de base aux etudes des différentes écoles de musique." Ibid: 37-38.

In addition to illustrating the possible combinations of two and three keys, Milhaud discussed polytonal textures through numerous musical examples. Consequently, he demonstrated that polytonality was a viable method of composition, thereby providing a starting point for further study. Milhaud discussed polytonal excerpts from works by Stravinsky, Roussel, Debussy, Bartók, Ravel, Koechlin, and himself. For the purposes of this study, the high point of "Polytonalité et atonalité" includes the composer's analysis of one of his own polytonal works, an excerpt from his Symphonie pour petit orchestre No. 3 "Serenade" (Op. 71, 1921). In order to understand Milhaud's analysis, one must again note that he defined polychordal and contrapuntal polytonal writing as two distinct practices. Consequently, he associated his own works with the latter style:

> We then realize the existence of harmonic polytonality where numerous methods of superimposing all sorts of chords are present. Concurrently, a purely contrapuntal tonality exists. In lieu of superimposing chords or chord progressions, written melodies in many different keys are superimposed in counterpoint. We find as a result an exposed mode of expression with the tonal independence of each part reduced to a minimum in a homophonic texture.[109]

While Milhaud took a positive stance on the use of polychords, it was necessary for him to distinguish the two styles so that he could associate himself with contrapuntal polytonality. This was crucial because, while polychords could be found in unitonal or polytonal textures, contrapuntal polytonality was only present in polytonal textures. As a

[109] "De même que, comme nous venons de le voir, il existe une polytonalité harmonique dont les resources sont continues dans toutes les manières de superposer toutes sortes d'accords, il existe aussi, parallèlement à celle-là, une polytonalité purement contrapuntique. Au lieu de superposer des accords ou des enchaînements d'accords, nous avons en mains comme element des melodies mécrites en plusieurs tons et qui se superposent par un jeu de contrepoint. Nous nous trouvons en face d'un mode d'expression très dépouillé et dont l'independence tonale de chaque partie est réduite à son minimum, puisqu'homophone." Ibid: 39.

result, polychords created in Milhaud's contrapuntal style functioned as harmonic resting points that connected the counterpoint.

The ramifications of Milhaud's contrapuntal polytonal style are reflected in the composer's compositions. By analyzing Symphonie pour petit orchestre No. 3 "Serenade," Milhaud provided an outline for understanding his compositional priorities and their interpretation. In "Polytonalité et atonalité," Milhaud advocated a quartet or "a small orchestra of solo instruments" as advantageous ensembles for writing polytonal compositions.[110] (It was also a "small orchestra of solo instruments" for which he wrote La Création du monde.) The three main points he made regarding polytonal writing were as follows: contrapuntal polytonality was to be used over polychordal writing; there were possibilities for textures in more than three keys; and, finally, the analysis of a section or work written in a contrapuntal polychordal style needed special study in order to create an accurate analysis.

Milhaud's Symphonie pour petit orchestre No. 3 "Serenade" highlighted the use of multiple key areas. Although Milhaud gave primacy to a single melodic line in the flute, there were four keys present in the six instrumental lines: "the melody played by the flute is in Bb, that of the clarinet in F, the bassoon in E, the violin in C (beginning from the 2nd measure) the viola in Bb, the cello in D…"[111] While in the theoretic examples from earlier in the article only conveyed the possibilities of three simultaneous keys, Milhaud's own work showed that four (or more) keys could be successfully utilized within a chamber texture. Thus, Milhaud did not limit himself to the number of keys used; in fact, only one key was repeated in this sextet texture.

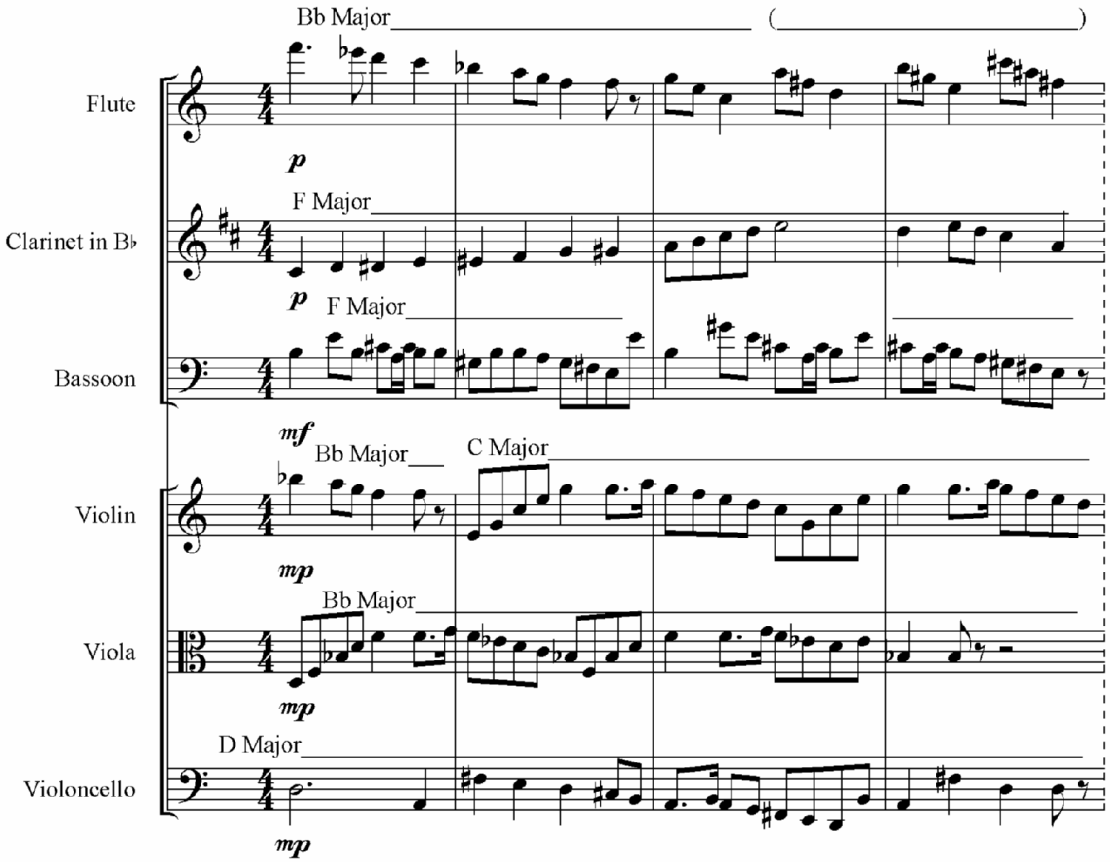
---

[110] Ibid: 40.

[111] "…la ligne mélodique jouée par le flute est in *si* bémol, celle de la clarinette en *fa*, du bassoon en *mi*, du violon en *ut* (à partir de la deuxième mesure), de l'alto en *si* bémol, du violoncelle en *ré*…" Ibid: 40.

In addition to commenting on pertinent key areas in his excerpt, Milhaud also annotated them in the score, as in Example 2.5. He placed brackets around the streams that started or ended in other keys. This comprised the third and fourth measures of the flute part and the first measure of the violin part. Five major keys were present, with Bb major repeated in a second part. Horizontal examination of this exerpt reveals that Milhaud used almost all the notes of each Ionian seven-step scale. There are so few omissions or alterations that one cannot deny the melodic presence of each scale. Thus, the use of complete versus incomplete scales in this excerpt is as follows.

Example 2.5 – Milhaud's Symphonie pour petit orchestre No. 3 "Serenade"



The flute part, in Bb major, contains all seven notes of the scale. The clarinet, in F major, contains seven scale-steps, but is actually in Lydian mode, with a raised fourth scale degree. The next three parts, in the bassoon (E major), violin (C major), and viola (Bb major), each contain six scale steps and all omit the leading tone. Finally, the cello, in D major, uses every note of the scale. In sum, there are only four omitted or altered pitches out of the five keys present. However, all of the omitted pitches are present within the other scales. As a result of this horizontal analysis, one surmises that Milhaud chose this example as representative of his style in 1923. Consequently, the omission of the leading tone and the use of modal scales in this style were acceptable to the composer.

As in Example 2.5, there were two main factors that Milhaud took into account when analyzing contrapuntal polytonality. First, one must acknowledge the presence of multiple key centers. Second, one should analyze contrapuntal polytonality based on its linear context. Milhaud specifically warned against basing an analysis on vertical slicing of a work. "One remarks that most of the time, if one analyzes a harmonic sum of polytonal counterpoint created from diatonic melodies, one gets vertical aggregations of unanalyzable notes as an atonal harmonic result."[112] As each stream was rendered on the horizontal, analysis of vertical aggregates would produce an atonal result.

Milhaud's assertions regarding the analysis of his own and others' works offer concrete conclusions about the composer's style. First, Milhaud provided examples of contrapuntal polytonal writing that reinforced the primacy of the melodic line over the harmonic ones. The composer used most of the pitches available for each seven-step scale. Often, the alterations in the scales resulted in the lack of a leading tone, or in

[112] "Il est à remarquer que la plupart du temps, en envisageant l'ensemble harmonique de ces contrepoints polytonaux de melodies diatoniques, on obtient verticalement des aggregations de notes inanalysables et dont le résultat harmonique est atonal." Ibid, 40.

modal alterations. In addition, a harmonic analysis created through vertical slicing produced non-functional results. Therefore, a vertical reading of primarily horizontal streams had to account for the multiple tonics present in some other manner.

Owing to the polytonal debates, it was necessary for Milhaud to resolve the disparity in the definition of polytonal music versus atonal styles and to associate polytonality with the French musical tradition. One of Milhaud's hopes was that through establishing a concrete definition for each of these styles, a polytonal system would be practiced by all musicians through their professional studies of harmony and counterpoint (44). While multiple systems exist for the analysis of polytonal/polychordal works, Milhaud's statements remind one to take context into account, instead of relying on a single system to analyze all polytonal works.

Chapter 3: Current Analytical Perspectives of Milhaud's Polytonality

After the Parisian polytonality debates of the 1920s, the study of Milhaud's use of polytonality continued into the present. This chapter surveys the last twenty-five years of research Milhaud's polytonal works of the 1920s. Research done prior to this time concentrates on the cataloging of musical themes and single key areas rather than the establishment of theories for integrating polytonal materials.[113] Recent scholarship concentrates on a few main themes. Scholars, especially Deborah Mawer and Peter Kaminsky, take Milhaud's 1923 article 'Polytonalité et atonalité" into account when creating their own analyses of Milhaud's polytonal music from the 1920s.[114] Two other concepts central to current scholars' discussions of polytonality are the determination of "scale identity" and "streaming." Identification of scales leads directly to the choice of available key areas, while streaming is the categorization of horizontal content within a work. However, these two criteria sometimes lead to conflicting results. Some scholars attempt to reconcile set theory with tonally based principles, while others continue to focus on pure tonal principles. Each school of analysis affects the others, leading to an interactive development of polytonal theories. Authors who incorporate set theory into

[113]Some studies discuss overall textures, but do not expand the descriptions of particular textures into a comprehensive analysis. See Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982). Others deal with contrapuntal polytonality, but focus on a description of the style. George Dexter Morrill's dissertation bases its theory on Milhaud's "Polytonalité et atonalité," and as a result recognizes "melodic tonal areas" and discusses some issues of prolongation, but does not integrate the two into a single system. See Dexter George Morrill, "Contrapuntal Polytonality in the Early Music of Darius Milhaud, Part II" (D.M.A. Thesis, Cornell University, 1970). Another study in this vein is found in Richard B. Bobbitt, "The Harmonic Idiom in the Works of 'Les Six'" (PhD diss, Boston University Graduate School, 1963). This study focuses on creating a new labeling system for polychordal textures, among others.

[114]See Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997); and Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 237-264.

their analyses include Keith W. Daniel and Deborah Mawer.[115] Tonal-based analyses are found in the work of Sarah Sedman Yang, Jeremy Drake, and Virginia Yvonne Cox, and tonal linear analysis is found in the work of Peter Kaminsky.[116] After providing more comprehensive definitions of scale identity and streaming, this study will focus on three theoretical concepts which make their appearance in current scholarship: pitch-class set analysis, tonal analysis, and linear analysis.

Scale identity is essential to the study of Milhaud's polytonality because the identification of available scales leads one to the choice and arrangement of key areas in one's analysis. Incomplete scales can often prove problematic to the scholar in this case, and scholars have different methods for dealing with them. For example, Mawer might decide that a group of pitches as all belong to the octatonic scale, while Cox might define these pitches as two separate and incomplete scales. The former lends itself to set theory, while the latter lends itself to polytonal analysis. As a result, the scholar's interpretation of Milhaud's scale types often leads to the mode of analysis. All of the scholars discussed in this chapter address the issue of scale identity in some manner.

Streaming, or the recognition of horizontal layers of varied musical materials, is a second concept that is closely tied with set theory, tonal, and polytonal methods of analysis. Variance in each scholar's views of streaming of an identical texture can lead to varied results, especially with regards to the role of the bass line. Scholars who do not favor a ruling-bass texture, such as Cox and Kelly, are more likely to label a section of a work as polytonal, instead of using set theory classifications or

---

[115] See Keith W. Daniel, "A Preliminary Investigation of Pitch-Class Set analysis in the Atonal and Polytonal works of Milhaud and Poulenc," *In Theory Only* 6 (1982): 22-48.

[116] See Sarah Sedman Yang, "The composer and dance collaboration in the twentieth century: Darius Milhaud's ballets, 1918-1958" (PhD diss., The University of California at Los Angeles, 1997); Jeremy Drake, *The Operas of Darius Milhaud* (New York: Garland, 1989); and Virginia Yvonne Cox, "Simultaneous diatonic harmonic contexts in early twentieth century music" (PhD diss., West Virginia University, 1993).

reducing the available materials to a tonal context, as in the work of Mawer and Kaminsky. With these criteria in place, one can begin a study of current polytonal analyses of Milhaud's works from the 1920s. This study begins by examining the work of Keith W. Daniel and Barbara Mawer, two scholars who incorporate pitch class set analysis (pitch-class sets) with polytonal structures.

SET THEORY AND POLYTONALITY

Keith W. Daniel

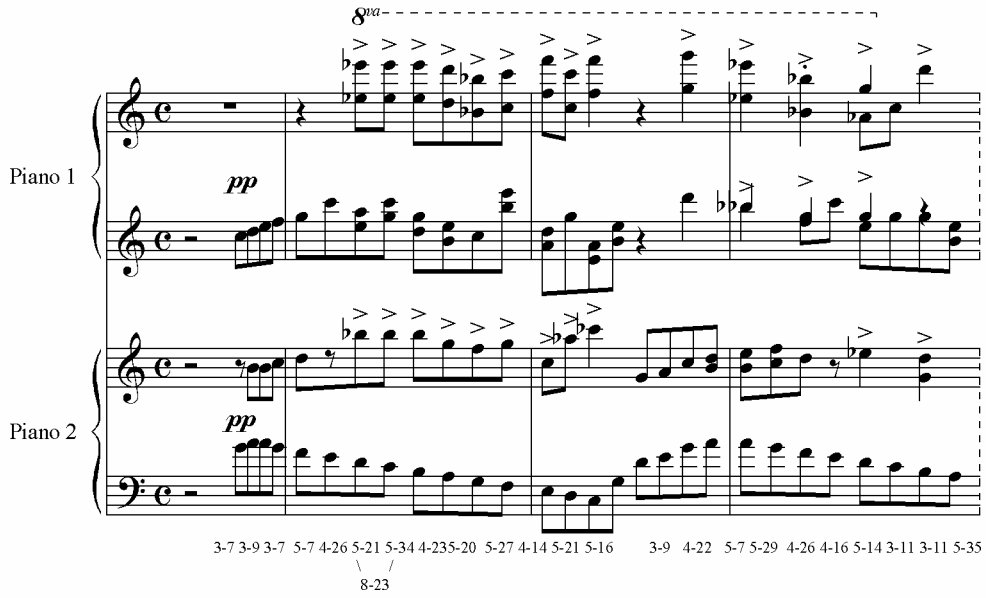
Keith W. Daniel's study of Milhaud's and Poulenc's music serves as a starting point from which to explore the use of pitch class set analysis on atonal and/or polytonal works of the 1920s.[117] In this study, I will focus on Daniel's methodology for applying pitch-class sets to the polytonal works of Milhaud, and how they influence his choice of a/tonal identity regarding scales and sets. Daniel uses pitch-class sets on Milhaud's polytonal works of the 1920s specifically because the surface level of these works contains a mixture of accidentals. Upon first glance, according to Daniel, one is unable to discern whether the surface texture is polytonal, atonal, or a combination of the two.[118] In order to create a methodology to analyze this repertoire using pitch-class sets, Daniel analyzes both large-scale and chamber works. I will focus on two of his examples: the first twenty-four measures of L'Homme et son désir (1918); and "Ipanema" from Saudades do Brazil (1920-21).

Daniel begins by analyzing Milhaud's orchestral score of L'Homme et son désir, segmenting sets on both the vertical and horizontal levels. After set identification, he

[117] Keith W. Daniel, "A Preliminary Investigation of Pitch-Class Set analysis in the Atonal and Polytonal works of Milhaud and Poulenc," *In Theory Only* 6 (1982): 22-48.
[118] Ibid: 22. N.B. – The remainder of Daniel's citations will be placed in parentheses within the text.

decides that the voicing is actually horizontally based. In addition, Daniel's results from partitioning sets horizontally are all diatonic. Consequently, Daniel finds very little correlation between sets created through vertical slicing. After this first assessment, Daniel continues by attempting "creative segmentation efforts" (23). Unfortunately, he was unable to find any significant correlation between sets through either segmentation process. As a result, Daniel cites a number of decisive factors that work against using pitch-class set analysis to explain Milhaud's works. First, in measures 1-6, Daniel discovers a number of pitches do not fit into his set groupings (24). Next, he finds that even on the phrase level, the variety of sets is too great, thus diffusing their value. In addition, Daniel asserts that the collection of available sets does not feature sets'

Example 3.1 – Daniel's vertical slicing of Milhaud's "L'Homme et son désir," mm. 1-6[119]



[119]Ibid: 24.

complements or Z-related sets (24-26). As one notes in Example 3.1, vertical slicing of a small portion of L'Homme et son désir produces a great number of sets. The table in Example 3.2 compiles Daniel's results for the above vertical slicing.

Example 3.2 – Daniel's set results from vertical slicing of L'Homme et son désir, mm. 1-6[120]

Trichords	*Tetrachords*	*Pentachords*	*Octachords*
*3-7**	*4-14*	*5-7**	*8-23*
*3-9**	*4-16*	*5-14*	*(4-23*
*3-11**	*4-22*	*5-16*	*and 5-34)*
	4-23	*5-20*	
	*4-26**	*5-21**	
		5-27	
		5-29	
		5-34	
		5-35	

120 This author has created the compilation of Daniel's set segmentations of mm. 1-6 of *L'Homme et son désir,* which he notes in text format. Ibid: 24.

From the table in Example 3.2, one notes the large number of sets created through vertical slicing and their relationships. According to one's compilation of Daniel's set choices, starred sets occur more than once in the example, while the remaining sets only have one occurrence each. A significant result of Daniel's study finds that Milhaud's sets do not function like those of the Second Viennese School and Stravinsky. Regarding Milhaud's set use, Daniel states:

> …even those sets chosen to form the set complex are not nearly as ubiquitously employed nor as tightly interwoven as are the sets in most atonal works…the identification of PC-sets in this passage does not reveal a structuring through the use of those sets, nor does set analysis contribute significantly to our understanding of the surface structure (24).

As a result, Daniel continues by stating that sections of Milhaud's music composed between 1915 and 1925 may look atonal on the surface, but are actually "constructed of simultaneous tonal and/or modal gestures…in fact, that there is little genuine atonality in Milhaud" (27). He determines that these gestures comprise ostinati, scale fragments, arpeggios, and layered diatonic melodic fragments. As Milhaud's polytonal works are often melody-based and lack significant results when subjected to pitch-class set analysis, Daniel states that Milhaud's music might be best served by other methods of analysis (27).

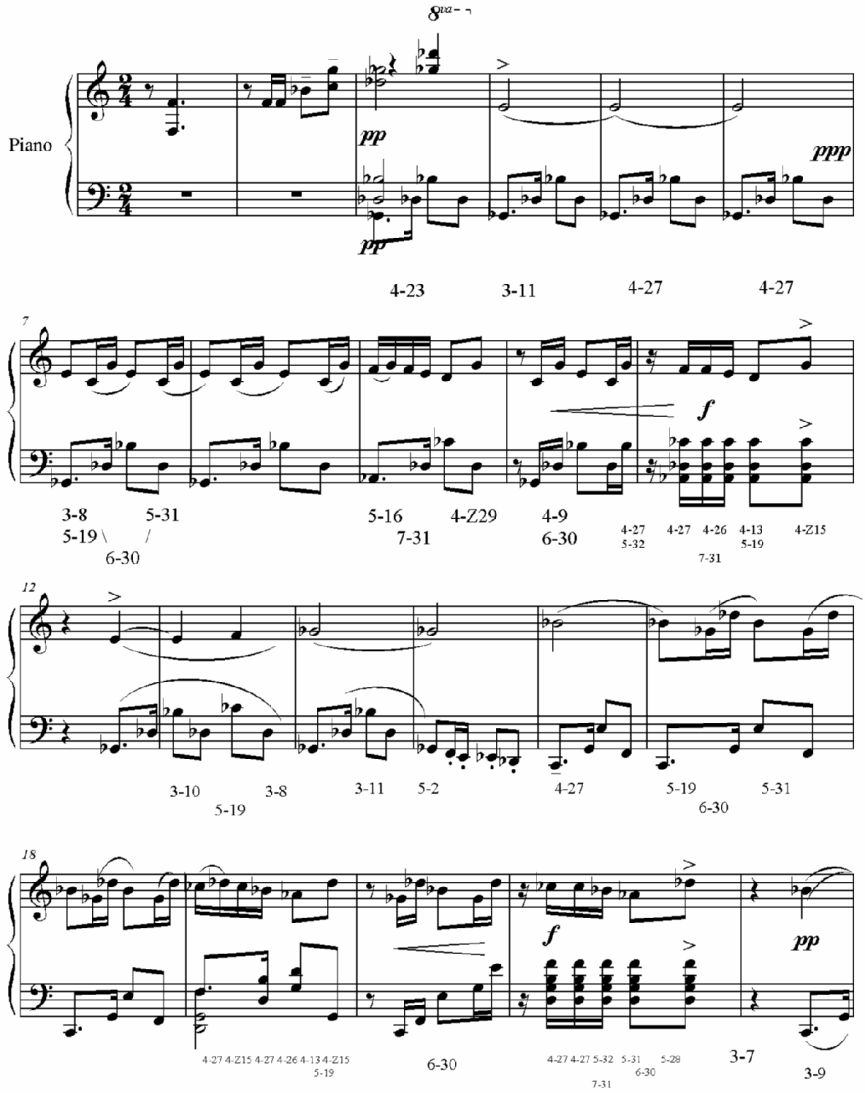
However, Daniel also attempts to codify the use of pitch-class set analysis for small-scale models by analyzing three movements of Saudades do Brazil: "Botafogo," "Copacabana," and "Ipanema." Although Daniel finds no new information in the pitch-class set analysis of the first two, "Ipanema" does register some new results in its B section (mm. 31-62).

In Example 3.3 Daniel identifies both set complex K and Kh correlations and the nexus set for "Ipanema," which he classifies as 4-27 (32-34). These correlations are feasible because the sets are used as an organizing principle, even in short passages. Consequently, Daniel's use of sets in this particular movement can be traced deeper than the surface structure (32-33). One must note that the sets Daniel chooses are also common to tonal and polytonal vocabularies. For example, 4-27 is the major minor seventh chord. Another important set, according to Daniel, is set 6-30, which is realized as a minor version of Stravinsky's "Petrushka chord." Another significant set correlation in this section is found in the Z-related sets 4-Z29 and 4-Z15. However, this all-interval tetrachord may also function as a minor triad with a minor ninth and no seventh. The final pair of noteworthy sets to Daniel is 7-31 and its complement 5-31, which in a tonal environment focus on the diminished ninth chord. So, while Daniel does find relationships among pitch-class sets in his analysis of "Ipanema," he concludes that pitch-class sets are,

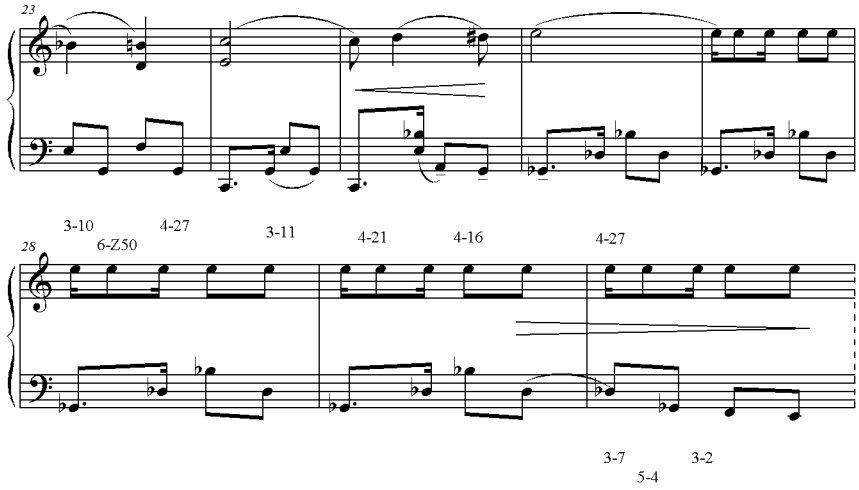
> …limited in usefulness in coming to terms with the polytonal music of Darius Milhaud. The linear nature of polytonality, which results from Milhaud's tendency to superimpose lines in different keys, limits the possibilities of segmentation, since horizontal sets will, for the most part, be diatonic (33, 36).

Therefore, Daniel concludes that atonal pitch-class sets do provide valuable information, but only at a "…secondary, localized level" (36). In other words, Daniel uses pitch-class sets to classify additive harmonies and concurrent harmonic movement in Milhaud's polytonal works. As a solution, Daniel suggests that one might find more relevant works of Milhaud's contemporaries, including Stravinsky, Debussy, and Bartók,

Example 3.3 – Daniel's pitch-class set analysis of the B section of Saudades do Brazil, "Ipanema," mm. 31-62 (35)



Example 3.3 – Daniel's pitch-class set analysis of the B section of Saudades do Brazil, "Ipanema," mm. 31-62, continued (35)



information by using interval vectors instead of sets or by using another large-scale means of organization.[121] In conclusion, Daniel is able to make a pitch-class set analysis relevant in small-scale compositions, such as the piano version of Saudades do Brazil, where there is little opportunity to use the polytonal textures utilized in larger chamber and orchestral works (30-33). Thus Daniel makes an enlightening negative study, one that forwards the argument that tonally derived means are more relevant for studies of Milhaud's music. In fact, Barbara Mawer expanded upon Daniel's pitch-class set analysis of Saudades do Brazil.

[121]Ibid: 36. One will discuss how Deborah Mawer utilizes Daniel's suggestion by analyzing "Ipanema" using Forte's Genera designations later in this chapter.

Barbara Mawer

Barbara Mawer's analyses of Milhaud's 1920s compositions affect the methodology of ensuing Milhaud studies.[122] No analysis of Milhaud's music of this period would be complete without assessing Mawer's methods. The thrust of her technique combines atonal and tonal methods by utilizing pitch-class set theory and linear analysis. These two techniques are strongly linked to issues central to this study, which include scale/set identity, vertical slicing of polytonal textures, analyzing the role of the bass through a discussion of Milhaud's 1923 article "Polytonalité et atonalité," and Salzerian polychordal hierarchies. An analysis of one of Milhaud's jazz-based works, "Ipanema" from Saudades do Brazil, illustrates how Mawer applies her multiple-interpretation approach of tonal, pitch-class set, and genera designations.

Mawer's argument for revising Milhaud's theses in his 1923 article "Polytonalité et atonalité" is based on her view that Milhaud's works should be analyzed as atonal. She forwards this argument through her assertion that there are atonal sections in bitonal, which follow Milhaud's practice as outlined in his article.[123] As a result, she aligns Milhaud's compositional practices with Stravinsky's use of chromaticism. Instead of employing the resolution of chromatic structures to determine if a work is tonal or atonal, Mawer limits chromaticism to atonality. Therefore, Mawer analyzes Milhaud's works as

---

122 Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997); and Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 237-264.

123 Mawer uses the figure entitled, "Milhaud's Chordal Types and Set Equivalents" (See Figure 3.2) to express bitonal combinations in the works of Stravinsky, Debussy, and Bartók. These comprise: Stravinsky's '*Petrushka* chord' which combines F# major and C major, as set 6-30 (VI); "Ondine," from Debussy's *Preludes*, that combined D and F#, as set 5-21 (IV); and Bartók's *Fourteen Bagatelles*, as set 5-27 (VII). Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997): 20. While current scholarship regarding the '*Petrushka* chord' does permit an octatonic interpretation, Stravinsky made statements to the contrary, noting that he imagined this chord having two competing key centers. See Igor Stravinsky and Robert Craft, *Expositions and Developments* (New York: Doubleday, 1962): 56.

chromatic instead of polytonal. Hence, polytonality is considered to be a type of atonality, while tonal works are only comprised of unitonal textures. All chromaticism represents atonality.[124] However, Milhaud advocated the reverse in his article "Polytonalité et atonalité," by noting that polytonal works are diatonic in their function, while atonal ones do not resolve tonally.[125] Mawer espouses that,

> Milhaud's article on 'polytonality' and atonality warrants serious consideration and critical scrutiny, even if 'polytonality' is regarded today as a rather dubious theoretical concept. Whatever one's theoretical stance, Milhaud did compose by superimposing melodic strata of conflicting tonalities so that his polytonality is a result of contrapuntal encounter."[126]

While she acknowledges that Milhaud's 1920s works are contrapuntally-driven, she does not agree with the composer's analysis of his own works. Consequently, Mawer provides a reading of Milhaud's article that converts his explanation of concurrent keys to concurrent set pairs. Her interpretation of Milhaud's bitonal combination chart from "Polytonalité et atonalité" is shown below in Example 3.4.[127] While Mawer updates Milhaud's chart through the use of set equivalents, she does not discuss the importance of the diatonic context created between each pair of chords/keys. For example, the combination of C major and Db major keys (I) as well as C major and B major (XI) are both represented by the set designation of 6-Z19. For this reason, this chart is useful for noting the closest relationship between tones, instead of representing pairs of concurrent keys. In other words, Mawer presumes that pairs of tonalities are inversionally equivalent.

---

[124] This attitude is identical to the one held by Coeuroy and Roquebrune during the Parisian polytonal debates. See Chapter 1 for details.
[125] Darius Milhaud, 'La Mélodie," *Melos* 3 (1922): 195.
[126] Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997): 19.
[127] Ibid: 20.

Example 3.4 – Mawer's "Milhaud's Chordal Types and Set Equivalents"(20)

Chordal type (Milhaud):	***I***	***II***	***III***	***IV***	***V***	***VI***
Triad/Tonality1:	***Db***	***D***	***Eb***	***E***	***F***	***F#***
Triad/Tonality2:	***C***	***C***	***C***	***C***	***C***	***C***
Set Designation:	***6-Z19***	***6-33***	***5-32***	***5-21***	***5-27***	***6-30***
(Reversed Sequence)	***VI***	***VII***	***VIII***	***IX***	***X***	***XI***
Triad/Tonality1:	***F#***	***G***	***Ab***	***A***	***Bb***	***B***
Triad/Tonality2:	***C***	***C***	***C***	***C***	***C***	***C***
Set:	***6-30***	***5-27***	***5-21***	***5-32***	***6-33***	***6-Z19***

Although a large-scale categorization of root relationships such as Mawer's does give one an overview of tonal limitations, it might be more useful to group the root relationships in a tonal manner, as in Schoenberg's Structural Functions of Harmony, for example.[128] An alternate system could provide additional information for the relation of keys by half-step. A tonal designation would acknowledge the resolution of this interval as either the combination of the Neapolitan and the tonic, or the leading tone and the tonic. In a tonal context, while the relationships may be the same, the actual function of

[128] Arnold Schoenberg, *Structural Functions of Harmony* (W.W. Norton, London: 1954).

the two keys will not: the keys of C and Db do not necessarily function in the same manner as that of C and B. This would allow scholars analyzing the piece to discern which of the two relationships predominates, providing a smooth and diatonically functional analysis.

Another concept from "Polytonalité et atonalité" that Mawer negates is Milhaud's views on vertical slicing of contrapuntal polytonal structures, which Milhaud stated as follows: "One remarks that most of the time, if one analyzes a harmonic sum of polytonal counterpoint created from diatonic melodies, one gets vertical aggregations of unanalyzable notes as an atonal harmonic result."[129] While Mawer notes that Milhaud focused on the primacy of the melody for his analyses, she believes a better result can be achieved via alternate means:

> It is unfortunate that he would not conceive of any vertical means of analysis: with due respect to his views on the supremacy of the contrapuntal perspective, any comprehensive analysis must also embrace the harmonic perspective since this is likely to aid understanding of motivic patterning, procedure, and coherence.[130]

However, one notes that other composers of the time, such as Koechlin, offered multiple solutions for assimilation of vertical elements with horizontal prioritization in Milhaud's works. The result of these methods was to analyze the harmony at the points where it structurally tied the lines together, points which Koechlin referred to as a "vertical stake."[131] Koechlin noted that one should align the vertical portion of the analysis with

---

129 "Il est à remarquer que la plupart du temps, en envisageant l'ensemble harmonique de ces contrepoints polytonaux de melodies diatoniques, on obtient verticalement des aggregations de notes inanalysables et dont le résultat harmonique est atonal." Darius Milhaud, "Polytonalité et atonalité," *Revue Musicale* 2:4 (1923): 40.

130 Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997): 23.

131 Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 250.

important structural points of the work, instead of merely creating an amalgation of results created by slicing the harmony on each beat. However, Mawer's vertical slicing requires the use of set theory in order to correlate her vertical results.

Mawer's assessment of Salzerian polychord theory leads her to the argument that the bass line functions as the ruling voice within a texture. Although Salzer believed in the use of polychords and polytonality, he had a set of guidelines for assimilating multiple keys into a single hierarchy:

> The examples by Copland and Stravinsky, in the preceding chapter, made it clear that polychords, for instance, not only constitute no contradiction to the essence of tonality, but also have enhanced its potentialities to a degree, which today cannot yet be correctly evaluated. The reason for this structural possibility of polychords lies in the fact that the lower triad of this chord combination, the one erected on the bass tonic, is definitely the dominating factor. It is the strength of this triad, which enables a polychord to act in a key-defining capacity.[132]

While Salzer's polytonal theories provided new constructs for linear analysis, they did not take contrapuntal polytonality into account. In addition, although Salzer's definition of polychordal function describes multiple elements from a single key, it does not address the use of polychords with materials from more than a single tonal center. Mawer finds that Salzer's approach to analyzing Milhaud's works is inadequate:

> Equally, the prefix 'poly' is of dubious perceptual and theoretical value: the concept of the simultaneous existence of several different tonal or modal lines seems invalid since one tends to perceive a resultant accumulation of all pitch matter heard at any particular moment, strongly influenced by the bass progression.[133]

---

[132] Felix Salzer, *Structural Hearing: Tonal Coherence in Music* (New York: C. Boni, 1952): 228. The analyses to which Salzer refers were Copland's *Our Town*, *No. 1*, mm. 17-26 and Stravinsky's *Symphony in Three Movements, I*, mm. 1-147. Please see Salzer, 192-93 and 218-19, respectively.

[133] Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997):18.

Mawer's quote indicates that she gives priority to both a single ruling bass line on the one hand, and vertical slicing on the other. Consequently, Mawer's goal is to combine the equal-priority system of set theory with the bass-line prioritization of Salzerian analysis. Closer inspection of Milhaud's works of the 1920s, such as La Création du monde, often reveals the presence of dual bass streams. While the concept of a single ruling bass voice functions well in smaller-scale analyses (such as those by Daniel and Kaminsky of Milhaud's Saudades do Brazil), the multiple melodic streams present in larger structures do not always allow for an analysis created through a single ruling bass line.

Mawer's methodology for combining Salzerian-based linear analysis and pitch-class set theory is best explored by examining her analysis of "Ipanema," from Saudades do Brazil. Acknowledges her multi-focal analytic style in her thesis, she asks: "How relevant are atonal techniques to modally conceived, centric music, albeit encompassing complex bimodal constructs?" In this analysis, Mawer also integrates arguments from Daniel's research and Joseph N. Straus' seventh axes.[134] Consequently, Mawer adopts the use of Forte's genera classifications to provide an additional overruling genera progression that will better contextualize her analytical results.[135]

Mawer's analysis of measures 53-57 of "Ipanema," from Saudades do Brazil illustrates her method of combined tonal, set, and genus analysis. She provides traditional chord labels that integrate the treble into the bass stream, thus giving the bass line priority. Next, Mawer applies set class labels to functions she believes are not readily apparent from the tonal labels. Finally, she arrives at an overall genus

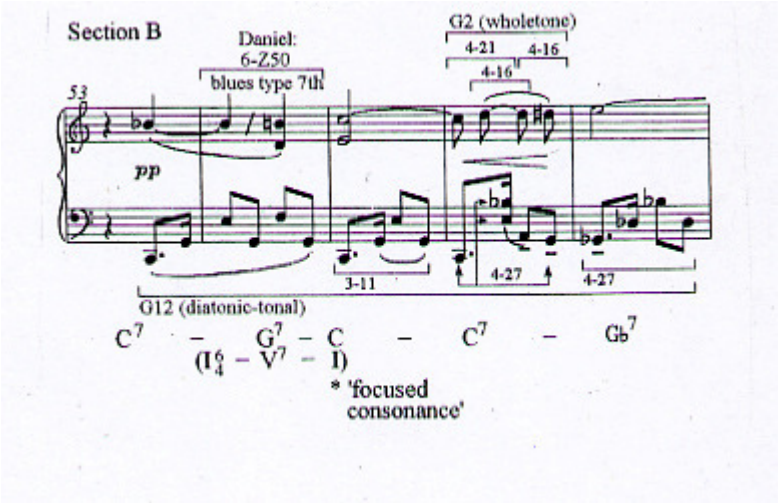
---

[134]Keith W. Daniel, "A Preliminary Investigation of Pitch-Class Set analysis in the Atonal and Polytonal works of Milhaud and Poulenc," *In Theory Only* 6 (1982): 22-48; and Joseph N. Straus, "Stravinsky's Tonal Axis," *Journal of Music Theory* 26:2 (Autumn 1982): 261-290.

[135] Allen Forte, "Pitch-Class Set Genera and the Origin of Modern Harmonic Species," *Journal of Music Theory* 32:2 (Autumn 1988):187-270.

designation through the compilation of available sets and the computation of the Status Quotient (which will be abbreviated as Squo throughout this chapter).[136]

Example 3.5 – Mawer's Saudades do Brazil, 'Ipanema," mm. 53-57 with chord, set and genus labels[137]



An examination of Mawer's set designations reveals that all of the highlighted sets are common elements of diatonic collections, with 3-11 representing the minor chord and 4-27 representing the dominant seventh. Genus 12, the dia-tonal collection, also reinforces the tonal basis of this example. Mawer notes that this excerpt is actually composed of three genera: Genus 12 (dia-tonal), Genus 2 (whole-tone), and Genus 3 (diminished).

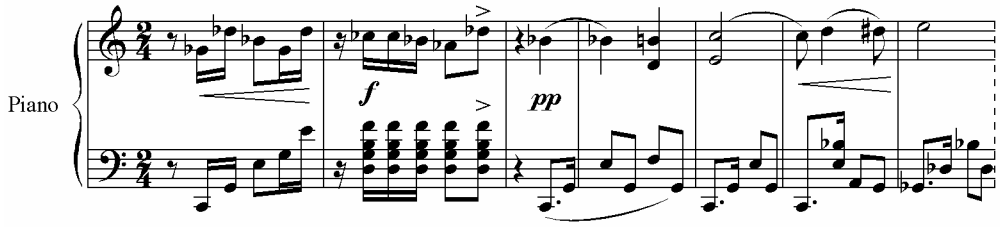
[136]The Status Quotient is meant to express Kh set complexes, which Mawer uses to prioritize multiple genera that appear within a specific context. The Status Quotient is calculated as follows: Squo (Ga) = ((X/Y) / Z) (10). To calculate the Squo of Genus A (Ga), one divides the number of occurrences of a Genus A in the excerpt, which is divided by the total number of sets in the excerpt. This number is then divided by the total size of Genus A, and multiplied by 10 for ease of reading. See Allen Forte, "Pitch-Class Set Genera and the Origin of Modern Harmonic Species," *Journal of Music Theory* 32:2 (Autumn 1988): 232.

[137]Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997):322.

The Squo calculation allows her to focus on a single designation in this five-bar section, instead of splitting the overall function of the excerpt into three major set/key/genera types. The result of a comparison of the three genera led Mawer to note that the most prevalent collection was Genus 12, with a rating of (.133), while Genus 2 ranked second at (.094). Instead of utilizing two keys for a bitonal passage, Mawer ascribes a single key through tonal means, and any additional materials through set labels. The integration of the treble into the bass line in this section works on the same level as the sets, by enfolding additional key areas or streams into the bass line. The chord aggregates of this example also provide a somewhat untraditional analysis. While the key shifts from C major to Gb major in this excerpt, the entire example is analyzed as being in C. While the ear does hear C in the bass against the Bb in the treble, this does not necessarily signify that the two tones should be joined to create a C7 (Mm7, or I7) chord. However, Mawer combines the two in order to make an argument for organization by seventh axes.

A bitonal analysis of measures 51-57 offers an alternate reading to Mawer's. First, the tonal streams may be split by register, with one stream in the treble and the other in the bass. Second, one notes that this passage moves from C and Gb, to C and F, to Gb and F. The opposition of Gb and F that is established in measure 57 sets up the return of the B section at measure 62, where the treble shifts from F major to F minor, and the bass descends from Gb major to Eb minor. With the addition of the first two measures, it is apparent that the treble line outlines a Gb major triad, which shifts to G major in measure 54, moves to C major in bar 55, and then ascends the scale to the leading tone, which finally resolves on the tonic F in measure 62. The accompanimental bass stream uses both arpeggiations and block chords. The bass progression is strictly in

Example 3.6 – Bitonal analysis of Saudades do Brazil, "Ipanema," mm. 51-57



C major through measure 55, generally alternating between the tonic and the dominant seventh chord. The first apparent alteration in the bass stream occurs at measure 56, where there is a major-minor seventh chord built on C. This suggests a V7/IV, which would lead to F, thereby placing both the treble and the bass stream in one unified key, F major. However, the C7 resolves deceptively to Gb in the next measure, which retains Bb as a common tone. The Gb chord is an appropriate substitution for F for two reasons; first, Gb is a featured key in this piece, and second, it also functions as the Neapolitan of F. The Neapolitan function is a common substitution for the dominant found in Milhaud's works, especially in Saudades do Brazil. Milhaud often used alterations of scale degree 2 to substitute for dominant function chords. Although the most common progression is to substitute a II chord [V/V] for V, but he also made use of the Neapolitan in this same context.[138]

Key identification can prove to be problematic in polytonal works, but by first identifying the stream, and then the key, one can often overcome these difficulties. For example, in measure 55, both the treble and the bass streams utilize the common chord of C major. While it is possible to analyze the end of measure 54 to the downbeat of

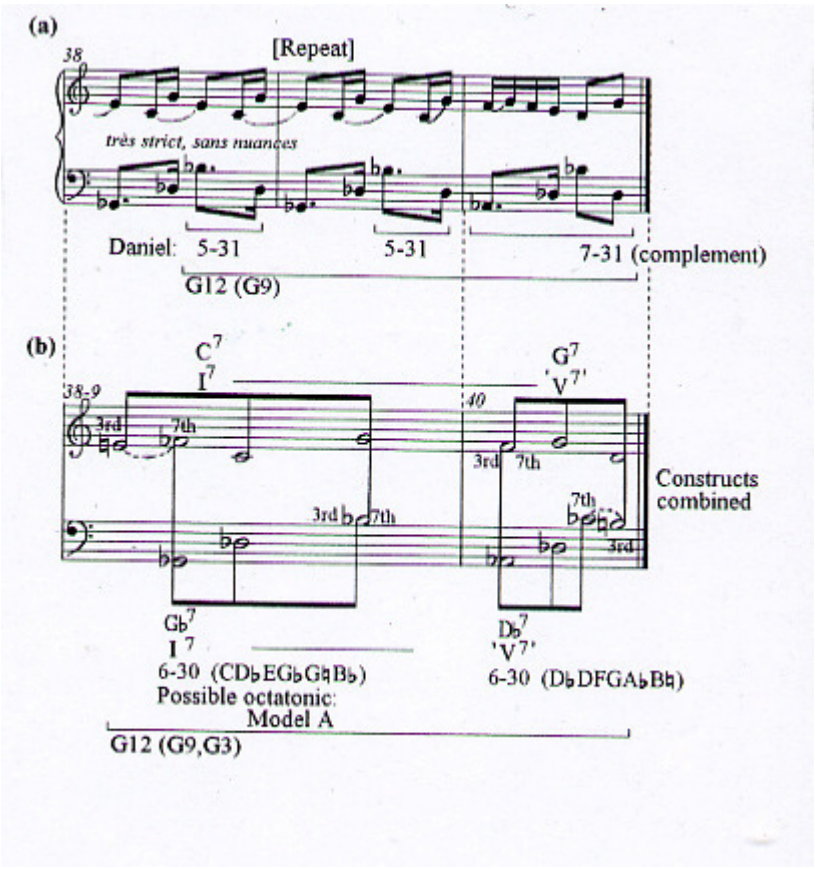
[138] Drake offers an explanation for Milhaud's dominant substitutions. Please see Jeremy Drake, *The Operas of Darius Milhaud* (New York: Garland, 1989): 213-14.

measure 61 as C major, the overall key progression should be taken into account. As a result, this progression begins from its resolution of F major in measure 62. Generally, measures 55-61 are a dominant preparation for the return of the original key of the treble stream, F minor. Another clue that may aid in the identification of horizontal textures in a miniature context is the charting of chord functions throughout a work. If a chord is not common to both keys, oftentimes the function will be closely aligned. In works such as Saudades do Brazil, Milhaud utilized chord functions that move out-of-phase, to increase tension, just as the use of common chords decreases tension. In charting the function of measure 51-57, one obtains the following results: The first four measures comprise identical functions on T-D-T-T-D. The second half of the excerpt splits the function T/D-D-T/D, where it remains, with a tonic function in both streams, until measure 62. In measures 55-57, the bass stream moves from tonic to dominant in C major and concludes on the tonic in Gb major. The treble stream remains on the dominant for these three bars, with bars 55-56 in F throughout. Therefore, the tonic function is in the lower stream, and the dominant function in the upper: the more stable of the two chord types is used to ground the bass line.

A second example from Mawer's analysis of "Ipanema," from measures 38-40, only spans three measures, but provides much of the background organizational materials for the work. Mawer does acknowledge that this excerpt also has a straightforward bitonal analysis and is even "elegant" in its use of coordinated cadence points. She detects the Gb major stream in the bass and the C major stream in the treble. However, Mawer's reading focuses on the use of the 7th axis and the octatonic scale in Example 3.7. Her interpretation in Example 3.7 provides a multitude of methods to assess this collection of pitches. In order to show the seventh axes behind this section of the work, Mawer utilizes enharmonic tones to synthesize the treble and bass streams. As a result,

the example is no longer strictly a cadential progression; it is a complex of two sets of dominant sevenths expressed concurrently at the tritone.

Example 3.7 – Mawer's analysis of Saudades do Brazil, "Ipanema," mm. 38-40[139]



Therefore, the Gb major triad in the bass line of mm. 38-39 becomes Gb7, with the addition of the E (Fb) in the treble stream. Conversely, the C major triad in the treble becomes C7 with the adoption of Bb from the bass stream. As Mawer states, the section is built upon interlocking seventh chords, which allows an interpretation of "Ipanema" as octatonic, with sets 6-30 and 7-31 occurring as subsets of 8-28, the complete octatonic

[139]Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997): 323.

set. By vertically slicing this section, Mawer, basing her classification on cordal movement, rather than the contrapuntal movement of Daniel's analysis, ends up with the set of 6-30.While Daniel identified the complementary sets of 5-31 and 7-31, Mawer's partitioning focuses only on set 5-31. According to Mawer's set designations, the overall Genus is Genus 12 (dia-tonal), even though it contains the influence of Genus 9 and Genus 3. Mawer states that these Genera help facilitate the overall genus shift within "Ipanema."[140]

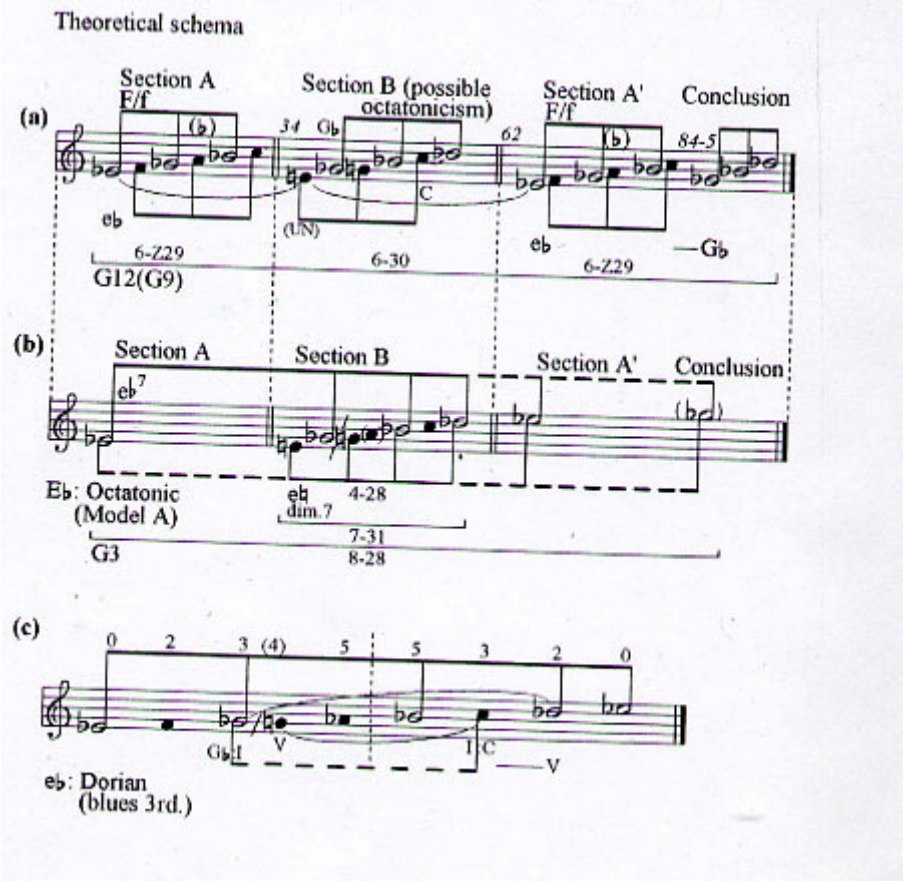
Mawer's strongest argument for the pitch organization of "Ipanema" is based on correlating her pitch-class set analysis to a progression of Genera throughout the movement. The Genera she considers are: Genus 2 (whole-tone, with the progenitor 3-8), Genus 3 (diminished, based on progenitor 3-10), Genus 9 (atonal-tonal, based on 3-3 and 3-11), and Genus 12 (dia-tonal, based on 3-7 and 3-11). As each genus has five counts, except Genus 3 (4 counts), Mawer calculates the Squo in order to provide definitive results. The two highest rated genera are G9 (rated at .152), and G12 (at .139).[141] However, Mawer contends that the Generic progression of "Ipanema" begins at Genus 12 and shifts to Genus 9. In order to support this claim, Mawer re-calculates the Squo for Genus 9 by omitting the set 6-20, which gives a new calculation of .122, which would then be second in rank to Genus 12's calculation of .152.[142]

Her background graphs for "Ipanema" integrate the shift in Genus with three models: the first focuses on Straus' seventh axes, the second on an octatonic reading, and the third on a Dorian "blues" scale.

---

[140]Deborah Mawer, *Darius Milhaud: Modality & Structure in Music of the 1920s* (England: Scolar Press, 1997): 138-140.
[141]Ibid: 142.
[142] Mawer argues that set 6-20 contains a Gb7 with an "interference" of D and A. However, one would need to then acknowledge a split seventh of F and F#. Ibid: 143.

Example 3.8 – Mawer's "Theoretical schema" for Saudades do Brazil, "Ipanema"[143]



First, Mawer states that Straus' seventh axes explain the move from Eb minor to Gb major, as shown in half notes in the example above. However, Mawer does not think this version of the schema integrates the F major/minor materials. If one examines Mawer's first schema, several observations come to mind. First, the overall schema moves from eb-Gb-eb-Gb in one voice and from F-C-F in the second. This outline of a dual tonal background suggests traditional tonal relationships between sections, with the eb-Gb relationship showing a shift from i-III, and the F-C relationship as I-V-I. However, one could also organize this background schema according to the available streaming, which

[143] Mawer's Example 4.8a-c. Ibid: 327.

produces different, albeit workable, results. The stream in the treble moves from F-Gb-F, while the bass stream functions as eb-C-eb. The treble stream would therefore function as I-N-I, using the Neapolitan as a dominant substitution. Milhaud makes dominant substitutions with various versions of chords based on a second scale degree, so this designation does not appear unusual for Milhaud. Next, the bass stream comprises a major sixth relationship, which is inverted from the relative relationship (i-VI-i, instead of i-III-I). However, neither schema described above would explain Mawer's coda, where the two keys of Eb minor and F major are integrated into Gb major. Another way one could examine this section is as if the whole coda ascended at the end, with F moving to Bb and eb moving to Gb. As the coda is composed of extra material, it would make sense for Milhaud to break form at this point.

Mawer's second schema also has a dual-organization. While its axis is based on E, and is thus integrated into the scalar materials, the second schema is organized around an octatonic scale on Eb. Mawer's model features sets 4-28, 7-31, and 8-28, which allows Genus 3 to be the ruling collection.[144] Although Mawer does not mention it, this reading still focuses on the half-step Neapolitan relationship, albeit with a different voicing. Her third schema also uses a single ruling collection. This schema focuses on the modal element of "Ipanema" by describing this movement as being in Eb Dorian with the addition of the blues third. Mawer's reading emphasizes several relationships within "Ipanema" to advantage, including the integration of Gb and G, the seventh axis on the pitches Eb-Db-Bb-Gb, and the tritone relationship between Gb and C.[145] Overall, model A makes the most sense as a dual-based approach. Model C, however, is closest to a traditional linear model, which ascends to tonic. Models A and B provide some problems

[144]Ibid: 143.
[145]Ibid: 144.

as they reflect a shift in pitch materials at the end, thus destroying the unity of the movement.

Mawer's multi-focal approach provides the scholar with a new paradigm from which to proceed. While her analyses do not feature polytonal interactions, she provides ideas that are a starting point for further analysis. Her appropriation of Straus' seventh axes to explain Milhaud's polytonal writing brings to light the connections between streams that Milhaud, in his 1950s interviews with Claude Rostand, mentioned as a starting point for his polytonal textures.[146]

TONAL ANALYSES OF POLYTONALITY

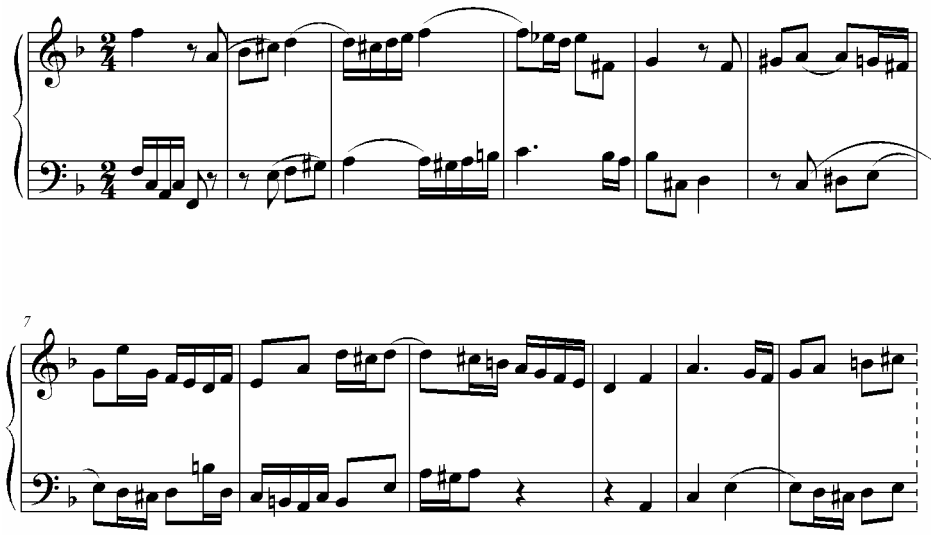
Sarah Sedman Yang

In her dissertation "The Composer and Dance Collaboration in the Twentieth Century: Darius Milhaud's Ballets, 1915-1958" Sarah SedmanYang interprets the views Milhaud expressed in his 1923 article "Polytonalité et atonalité"[147] For Yang, the concept of scale identity is important in determining if a work is unitonal or polytonal. She believes that because Milhaud rejects inflectional variance in his analysis of the J.S. Bach F Major Duetto, his works should be analyzed as polytonal instead of unitonal or atonal. According to Yang, Milhaud's writing does not contain inflectional variance, that is, the practice of substituting one note for another of the same letter name within a

[146]Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952): 54.
[147] Sarah Sedman Yang, "The Composer and Dance Collaboration in the Twentieth Century: Darius Milhaud's Ballets, 1918-1958" (PhD diss, The University of California at Los Angeles, 1997). While Yang does address several issues specific to Milhaud's *Le Création du monde,* these will be addressed in Chapter 4.

scale.[148] (For example, F, F#, and Fb are all acceptable versions of F in a single scale if one accepts inflectional variance.) Yang contends that Milhaud believed a texture could be polytonal if it contained "false relations," such as the C versus C# in mm. 37-38 below.

Example 3.9 – J.S. Bach, Duetto in F Major, BWV 803, mm. 37-48[149]



Milhaud asserted that because of the voicing of the C and C#, the C# belong to a second key. Therefore, Yang asserts that Milhaud did not use inflectional variance. In other words, Milhaud was not substituting one pitch for another in order to make a single altered scale, but instead intended to compose polytonally. Yang concludes that,

[148] Ibid: 81. Yang makes her argument using the English translation of Milhaud's "Polytonalité et atonalité," from the 1923 *Revue Musicale* article. She does not, however, cite this translation's origin.
[149] J.S. Bach, *Duetto in F Major from Clavierübung Part III* (accessed Mar 1, 2006), <http://www.MutpoiaProject.org>.

"polytonality for Milhaud was an application of Baroque contrapuntal procedures and not an attempt at increasing complexities in the line of Wagner or Schoenberg."[150]

Jeremy Drake

Jeremy Drake's work in the field of Milhaud scholarship brings a new understanding to the composer's works, especially in the operatic realm. Central to this study is Drake's overview of Milhaud's output during the 1920s and his conclusions regarding the composer's polytonal compositions. Concepts Drake addresses that affect polytonal structures include his definitions of scale identity, the use of inflectional polyvalence, and their effects on form in Milhaud's works.

After examining the composer's music, Drake concludes that Milhaud based his music in modality more than tonality. Drake's adoption of modality as Milhaud's primary musical language has led him to classify Milhaud's melodic structures and their harmonic results within his works. As a result of choosing a modal vocabulary as Milhaud's primary expression of scale identity, Drake asserts that the layering of various modalities has led some to think that the composer wrote atonally:

> It will easily be accepted that Milhaud was not an atonal composer. The merest examination of his music suffices to verify that neither in the constructions of Milhaud's melodies, harmonies, nor of his forms does atonality play any part. And yet it is only with qualifications that we may term Milhaud a tonal composer, for the true basis of his music is not tonality but modality. Here too examination of his music, of whatever period, will soon reveal an almost total absence of major and minor keys and key relationships, of tonal formal organization, of harmonic functionality, of the cycle of fifths, of modulation, even of a perfect cadence. The minimal exceptions to be found are of only local relevance and by no means decisive.[151]

---

[150]Sarah Sedman Yang, "The Composer and Dance Collaboration in the Twentieth Century: Darius Milhaud's Ballets, 1918-1958" (PhD diss, The University of California at Los Angeles, 1997): 81.
[151] Jeremy Drake, *The Operas of Darius Milhaud* (New York: Garland, 1989): 201.

Drake classifies the elements of Milhaud's music as belonging neither to the tonal nor the atonal realm. As a result, Drake claims that Milhaud's preferred modal vocabulary was derived from the composer's early influences. He believes that Milhaud's adoption of modality was a result of his early exposure to both Jewish liturgical music and Provençal folk music.[152] According to Drake, Milhaud's familiarity with the medieval church modes was so facile that he differentiated between authentic and plagal versions of these modes. Consequently, the choice of specific focal and/or cadential notes broke down traditional harmonic progressions.[153] The three modal scales that Milhaud preferred were Mixolydian, Aeolian, and Lydian. Drake interprets these three modes in the following manner: he sees the Mixolydian mode as a major mode that uses the subtonic at cadence points. The Aeolian mode is represented as true natural minor with scale degrees 6 and 7 lowered, regardless of melodic direction. Finally, the Lydian mode sometimes is combined with the Mixolydian, leading to a major-type scale with a raised 4 and a flat 7. For Drake, the harmonic advantage of a modal vocabulary is twofold. First, it allows the composer to have a greater variety of cadences from which to choose. For example, Drake cites Milhaud as having used a ii-I supertonic cadence substituted for an imperfect cadence. Second, it allowed Milhaud to switch between groups of keys without pivot chords, primarily through direct modulations. The use of varied cadences and direct modulation between pairs or sets of keys serve to obscure tonality in Milhaud's polytonal works.

Drake's concept of "inflectional polyvalency" affects how one discerns the melodic streams and their key areas in Milhaud's polytonal structures. "Inflectional polyvalency" asserts that any note within a scale may be altered with a flat, sharp, or

[152]Ibid: 202.
[153]Ibid: 201, 203.

natural and still be considered the same scale degree.[154] Therefore, if one was in a C major scale, a Gb, G natural, or G# could be used to represent the dominant. According to Drake, "inflectional polyvalency" affects Milhaud's music on four levels, including melody, counterpoint, harmony, and form. First, in melodic writing, inflectional polyvalence is found in chromatic melodic sections or just as a change of inflection for its own sake. Second, in contrapuntal textures, Milhaud's music often alters the third scale degree so that the contrast between two melodic lines is easier to discern, and provides a dissonant "bite." Third, oftentimes a split third in a chord occurs in the last sonority of a movement or section. Finally, inflectional polyvalence affects form by changing a previously heard melody or texture on its return. Drake asserts that Milhaud's forms vary through the use inflectional polyvalency and a change of color. One method of accomplishing this color change is to take a section that was written in a key with few sharps or flats and on its return add many accidentals.[155] As a result, the levels of consonance and dissonance within a texture are altered from diatonic norms in five ways. First, Drake identifies consonance as any combination of notes that belong to one scale. Any note foreign to the particular scale used is dissonant. For example, a B in an F Lydian scale is consonant, while a Bb would be dissonant. Therefore, as a result of Milhaud's mode use, the tonic is less important overall within a texture. Second, the dominant chord does not necessarily function as a dominant. This often results in a substitution of the supertonic chord for the dominant one. Drake cites that Milhaud even used an alteration of I and II instead of I and V for vamping.[156] Third, perfect cadences are absent.[157] Fourth, "a melody is often accompanied by a deliberately dissonant

[154]Ibid: 206.
[155]Ibid: 206-207.
[156] N.B. – Drake cites the alternation between I and II and not I and V/V.
[157]Ibid: 213-214.

harmony."[158] This dissonant harmony often belongs to a second key. Fifth, Drake asserts that the use of modal textures allowed Milhaud to write textures that are "harmonically out of phase."[159] Drake's choice of modes as Milhaud's primary vocabulary affects his analysis of Milhaud's polytonal writing. By showing that modes are the primary element of Milhaud's polytonality, Drake has perhaps adopted Paul Collaer's view that it is not melodic organization that made Milhaud's works sound more or less polytonal, but their alternation between diatonicism and modalism. According to Collaer, modal sections sound less polytonal, while major or minor melodies sounded more tonal. In other words, diatonicism strengthens a polytonal texture, while modalism weakens it.[160]

Virginia Yvonne Cox

In her dissertation, Virginia Yvonne Cox discusses detailed criteria for the analysis of polytonal works from 1913-1925.[161] The composers whose works she studies provide an international context for polytonal writing. This context allows one to observe how composers with different influences could all write in a polytonal style. The composers Cox includes are Bartók, Bloch, Honegger, Milhaud, Poulenc, Ravel, Stravinsky, and Szymanowski. Significantly, five of the eight composers listed were active in Paris during the 1920s.[162] In her analysis of Milhaud's polytonality, Cox focuses on piano and

---

[158]Ibid: 215.
[159]Ibid: 216.
160 Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982): 75.
161 Virginia Yvonne Cox, "Simultaneous Diatonic Harmonic Contexts in Early Twentieth Century Music" (PhD diss., West Virginia University, 1993).
[162]The five composers active in Paris in the 1920s were Honegger, Milhaud, Poulenc, Ravel, and Stravinsky. In addition, Szymanowski was a part-time resident of Paris during the years 1922-1926.

other small-scale works, such as mélodie (French art song).[163] Cox's study of a tonal system of classification is a unique study of Milhaud's polytonal structures. Of importance for this study of polytonality are her definitions of types of melodic streaming and a sense of scale identity as expressed in diatonic scale-set relationships, tonal function of combined vertical slices of music, and simultaneous chord functions.

Cox bases her methodology on diatonic function, allowing for a broad spectrum of polytonal structures. Scale identity is central to her analysis and definition of polytonal music. She defines all polyphonic textures as being based on seven-note scales, regardless of the style of polytonality or the number of pitch centers.[164] As a result, she does not consider compositions written in alternate scales, such as the octatonic, as viable for polytonality.[165] However, one notes that both complete and incomplete scales are admissible under Cox's criteria.[166]

For works in up to three keys, Cox defines three primary types of melodic streaming. The first texture is canonic, created by two concurrent melodies. Cox notes that the two melodic streams in this context may be identified by their "similar melodic and rhythmic designs" (31). This is illustrated in Example 3.10. The second texture places one key in the melody and a second in the accompaniment, cantilena style. Cox

---

[163] Cox analyzes Milhaud's *Chant de la Pitié* (1920)*, Fête de Bordeaux* (1920), and four movements from *Saudades do Brazil* (1920-1921).

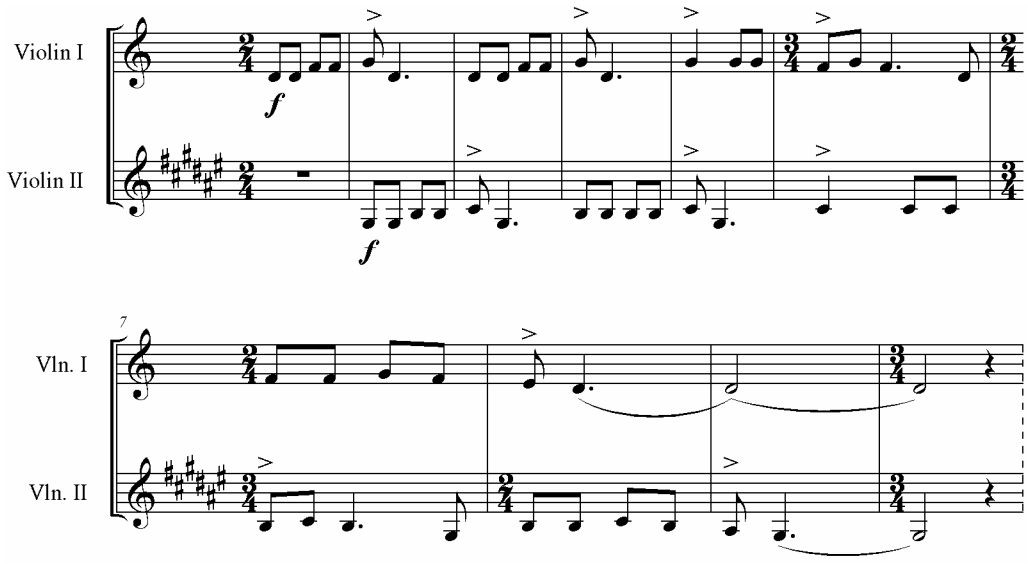
[164]Ibid: 2-3.

[165]Ibid: 179. However, in Cox's summation of scale types used in the polytonal works that she studies, the pentatonic scale occurs, albeit in different forms, only twice. The first incidence of the pentatonic scale is found in the bass line of Milhaud's *Chant de la pitié*, on the scale degrees 1-2-3-5-6. The second occurrence of the pentatonic scale is found in Arthur Honegger's *Sept Piéces Brèves, No. 4*, in a melodic portion, on the scale degrees 1-2-4-5-b7. While both of these scales provide the anhemitonic gaps needed to classify a pentatonic scale, one might suppose that these pentatonic scales could also be translated into a diatonic context, especially as they are not representatives of the anhemitonic pentatonic scale, which is the most common pentatonic scale in Western art music, comprised of the scale degrees 1-2-3-5-6. Also see Jeremy Day-O'Connell, "Pentatonic," *Grove Music Online,* ed. L. Macy (accessed 15 Apr 2006), <http://www.grovemusic.com>.

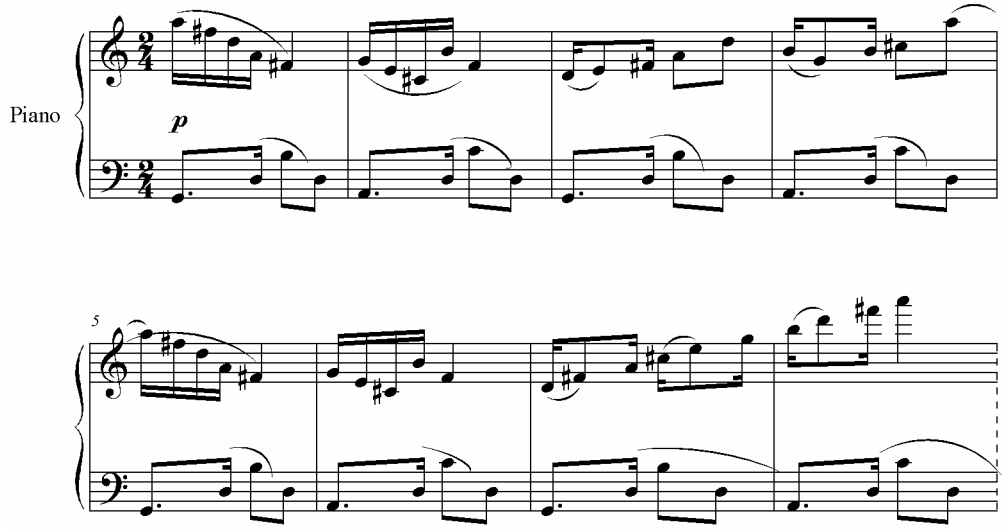
[166]Virginia Yvonne Cox, "Simultaneous Diatonic Harmonic Contexts in Early Twentieth Century Music" (PhD diss, West Virginia University, 1993): 79. N.B. – Notes for Cox will be listed in parentheses within the text.

asserts that the bass stream features a typical arpeggiated accompaniment against an eight-bar melody in Example 3.11. General characterizations of a melody versus accompaniment style of streaming consist of "contrasting rhythmic features, linear contours, and articulation" (32). The last texture comprises three key areas, with one melodic line and two accompanimental ones, as illustrated in Example 3.12 (31-33). Cox's reasons for separating the streams are as follows. She states that, "the voice-stream is clearly distinguished from the accompanying streams because of its instrumentation, rhythm and phrasing. Although the two accompanying streams are similar in instrumentation and in having a recurring pattern that lasts two beats, they are distinct in the contrast of note lengths, contour, and range" (32). This third type of streaming, as in Example 3.12, supports the possibility of multiple concurrent diatonic bass lines, which occur in Milhaud's La Création du monde. While Cox's asserts that each stream is separate with limited range overlap, this assertion only applies to the types of works that she studies, which include Milhaud's vocal and piano works. The remaining examples in the text also focus on small-scale works. In large-scale works, one may have no choice but to overlap streams by range. Cox then separates each stream by naming them successively, from bass to soprano. The lowest stream in the bass is called the "referential context," abbreviated as RC. The stream in the treble is then called the "associated context," or AC. If there are more than two streams, Cox labels "associated contexts" as AC1 and AC2. However, Cox is quick to note that these classifications are for ease of labeling streams, and does not give the RC any "special syntactic attributes" (37). Cox's choice of seven-step scales as Milhaud's scale vocabulary means that she can combine Milhaud's use of modality with traditional tonal contexts. One way Cox accomplishes this is through her definition of "diatonic scale set

Example 3.10 – Bartók's Forty-Four Violin Duets, No. 33, mm. 6-15[167]



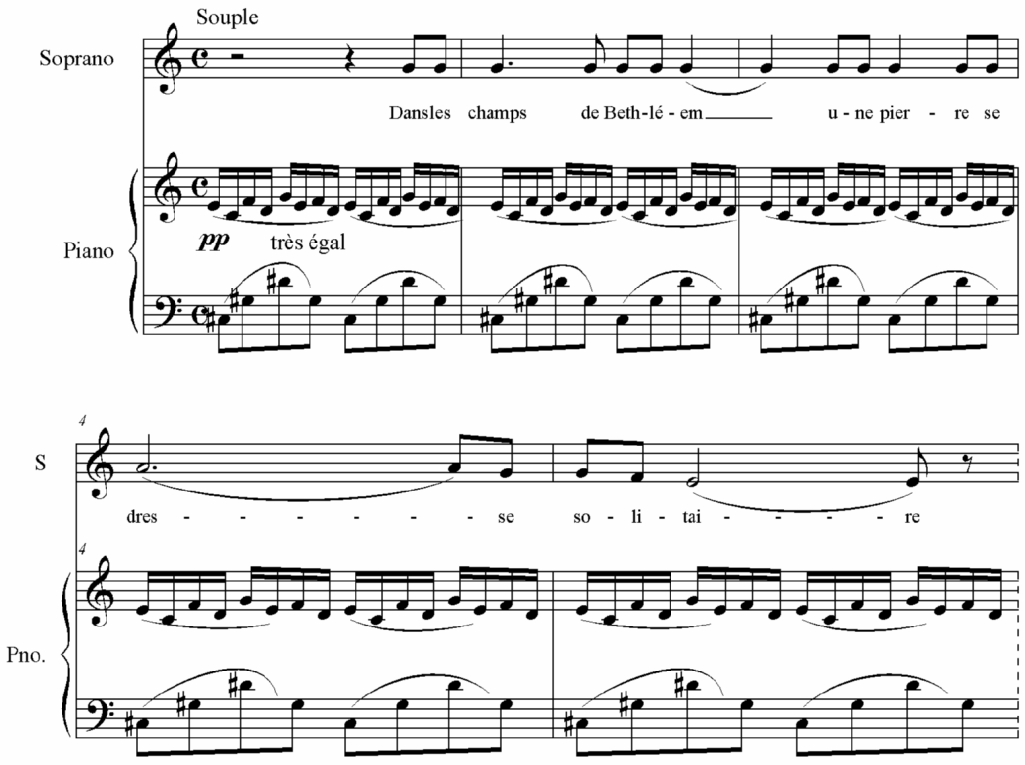
Example 3.11 - Milhaud's Saudades do Brazil, "Corcovado," mm. 1-8[168]



[167]Bela Bartók, *44 Violin Duets* (New York: Boosey & Hawkes, 1939). Cox's example of this excerpt with stream labels can be found in her dissertation on page 31.

[168]Darius Milhaud, *Saudades do Brazil* (Paris: M. Eschig, 1922). Cox's example of this excerpt with stream labels can be found in her dissertation on page 32.

Example 3.12 – Milhaud's Poèmes Juifs, "Chant de la pitié," mm. 1-5[169]



relations." This classification provides a method for rating the dissonance between concurrent keys. She labels dissonance levels from one to six, each numeral illustrating the number of accidentals by which two scales differ on the circle of fifths (43). For example, the "diatonic scale set relation" between C major and G major is 1, while the relation between C major and D major is 2. While this provides a baseline for how closely related two scales appear, one needs additional information, such as how these scales interact in a single texture, to make this type of classification more relevant.

Cox solves the issue of how key combinations function by creating the classifications of "pitch-class manifestation" and "tonal function of the combined

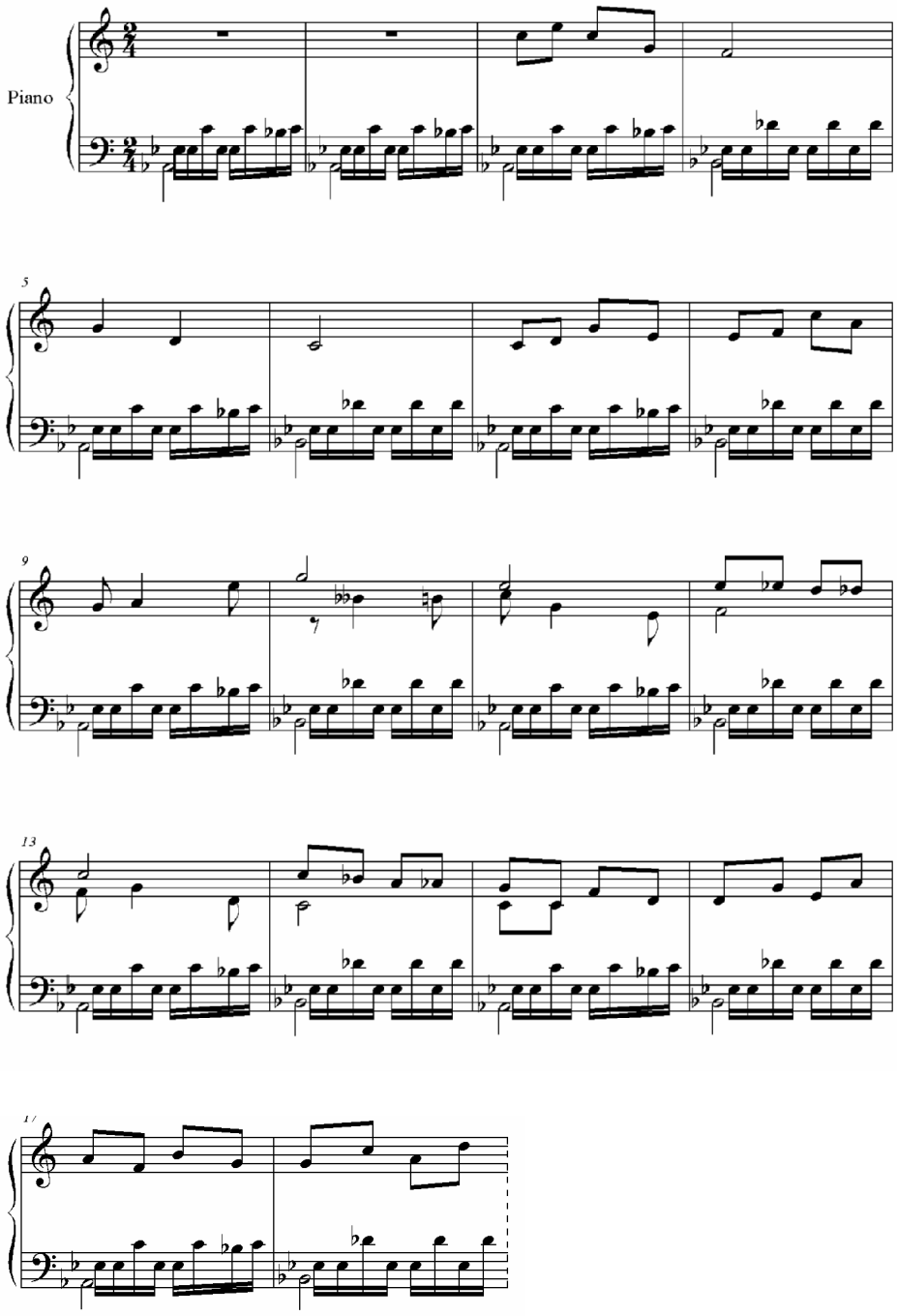
169Darius Milhaud, *Poèmes Juifs,* "Chant de la pitié" (accessed May 1, 2006), <sheetmusicplus.com>. Cox's example of this excerpt with stream labels can be found in her dissertation on page 33.

noteclass aggregate." The former shows the common tones between scales, while the latter shows combined scale degree function. In order to understand how Cox makes these classifications, one must examine both Milhaud's music and her analysis.

In her analysis of Saudades do Brazil, "Paineras," shown in Example 3.13, Cox places the referential context in the bass line as Ab major and the associated context in the treble in C major. In her charts, she shows the common tones and the scale degrees of each pitch present in this excerpt. Example 3.14 illustrates how Cox classifies common tones, with the "common manifestation" showing common tones of C and Bb. The "chromatic manifestation" shows pitches that are present by letter name in both scales, but that do not have the same accidental. The "singular manifestation" shows pitches by letter name that are present in one scale, but not the other. The last classification, the "enharmonic pair," which consists of two pitches that are enharmonically equivalent, does not appear in this example (41). By examining this chart, one observes that the "referential context" (or bass stream) is composed of an incomplete scale.[170] However, Cox asserts that notes may diatonically function in one or all keys present in a texture. As a result, Cox compiles the "tonal function of the combined noteclass aggregate." She explains that a note that is initially part of a harmony in a first key might have a concurrent function in a second key, so that notes written in a second key that are common to, but not necessarily present, in the first key may be assessed as dual function (44). This dual function can be seen in Example 3.15. Example 3.15 separates each horizontal stream and then classifies its contents according to scale degree. Unfortunately, Cox's commentary on the individual analyses focuses on the classification system instead of the ramifications of her results. Her commentary for the above chart is restricted to "the separate key-degree.

[170] A rare, but allowable possibility for Cox in this case is also the pentatonic scale.

Example 3.13 – Milhaud's Saudades do Brazil, "Paineras," mm. 1-18



Example 3.14 – Cox's "Stepclass manifestation" for Saudades do Brazil, "Paineras," mm. 1-18 (56)

Stream	*Common*	*Chromatic*	*Singular*
AC	*C, Bb*	*B, D, E, A*	*F, G*
RC	*C, Bb*	*Bb, Db, Eb, Ab*	*Ø*

Example 3.15 – Cox's "Tonal function of the combined noteclass aggregate" for Saudades do Brazil, "Paineras," mm. 1-18[171]

	C	*Db*	*D*	*Eb*	*E*	*F*	*G*	*Ab*	*A*	*Bb*	*B*
AC	*P1°*	*(m2°)*	*M2°*	*(m3°)*	*M3°*	*P4°*	*P5°*	*(m6°)*	*M6°*	*m7°*	*M7°*
RC	*M3°*	*P4°*	*ø*	*P5°*	*ø*	*ø*	*ø*	*P1°*	*ø*	*M2°*	*ø*

functions in each harmonic context for the noteclass aggregate of both contexts are given below The unessential noteclasses are shown in parentheses" (56). However, one may draw multiple conclusions from the above chart: notably, the two streams have a common tone C, which refers to the tonic triad in each individual context. In addition, the other common tone, Bb, could lead one to consider shared Bbs as dominant support in the RC. One way to maximize the impact of common tones between two keys would be to combine both of Cox's charts into one:

[171]Ibid: 56. N.B. – I have switched the cells for Ab and A in the Referential Context, to correct an error in this chart.

Example 3.16 - Common-tone focused chart for Saudades do Brazil, "Paineras," mm. 1-18, based on Cox's analysis

	C	***Db***	***D***	***Eb***	***E***	***F***	***G***	***Ab***	***A***	***Bb***	***B***
C Major	***1***	***[b2]***	***2***	***[b3]***	***3***	***4***	***5***	***[b6]***	***6***	***b7***	***7***
Ab Major	***3***	***4***	***ø***	***5***	***ø***	***ø***	***ø***	***1***	***ø***	***2***	***ø***

The revised chart in Example 3.16 places the common tones in bold and the unused tones within a scale in brackets. As a result, there are two common tones between these two scales and their corresponding scale degree function. All scale degrees refer to the major scale unless altered by accidentals.

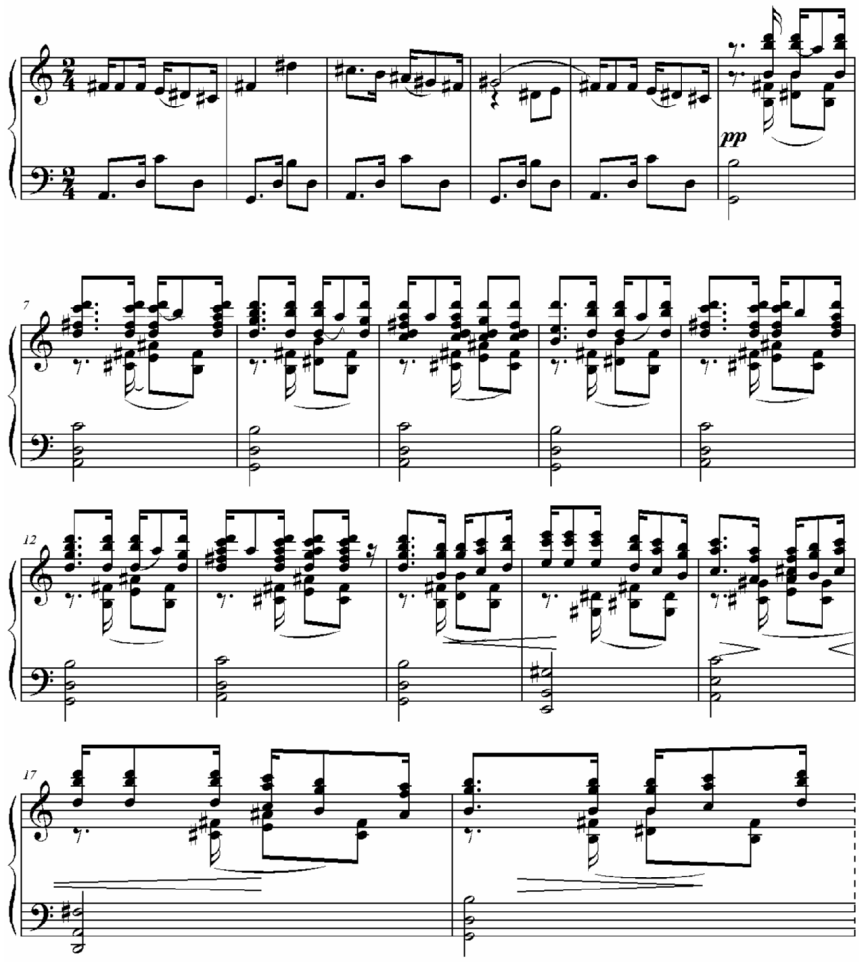
Cox's examples of polytonal (versus bitonal) textures are limited because of her choice to examine only small-scale works for piano or voice and piano. Only one example illustrates Milhaud's compositional methods in polytonal contexts.[172] This appears in Cox's analysis of measures 1-37 of "Copacabana" from Saudades do Brazil (1920-21). Cox's choice of stream types, acknowledgement of common tones, and examination of harmonic phasing are all valuable for a study of Milhaud's polytonality. In measures 21-27 of "Copacabana," Cox discerns the three keys of G major, B major

[172] Cox also acknowledges three streams in Milhaud's "Corcovado" from *Saudades do Brazil*. She identifies the streams to be in the keys of G major, G minor and Bb major. While this is one objective way to classify streams, one can make an argument for the above example comprising two key areas, those of G and Bb. The differences between G major and G minor may be viewed as a change of mode only, which Drake notes Milhaud used to provide harmonic "bite," or differentiation between streams. See Virginia Yvonne Cox, "Simultaneous Diatonic Harmonic Contexts in Early Twentieth Century Music." (PhD diss, West Virginia University, 1993): 113 and Jeremy Drake, *The Operas of Darius Milhaud* (New York: Garland, 1989): 206.

and C major, which reflect the third textural style described previously: "Throughout the example, the highest stream has a melodic function and the lower streams have an accompaniment function."[173] This analysis opens the possibilities for multiple concurrent melodic or harmonic streams, with freedom from a single ruling bass line. As shown in Example 3.17, Cox chooses three streams. She states that the two accompanimental streams comprise the RC, on the bass staff, and the AC1, in the alto voice on the treble staff. According to Cox, these two streams are accompanimental, because of their rhythmic and chordal basis. Although the melodic line labeled AC2 is doubled at the third and octave, this doubling is used to thicken the texture, and does not function as an accompanimental figure.[174] Cox then compiles all of the common tones of the three contexts/keys (Example 3.18). In Example 3.18, the pitches that are shared between two keys are in boldface, while those that share all three keys are in both boldface and italics. As a result, there are two pitch classes shared among all three keys and an additional five pitch classes shared between two keys. Therefore, more than half of the total available twelve pitches are shared between at least two keys. Cox's classification system of shared notes/pitches among keys aids the recognition of how each key stream interacts with the others, and provides a valuable tool for creating a linear analysis that illustrates the interactions of polytonal streaming. A final classification that Cox makes in this example from "Copacabana" is the interaction of chords among keys. From her chart of the harmonic progression of each stream, one can discern if the three streams are in phase or out of phase on a harmonic level. Cox's chart is shown in Example 3.19.

[173]Virginia Yvonne Cox, "Simultaneous Diatonic Harmonic Contexts in Early Twentieth Century Music." (PhD diss, West Virginia University, 1993): 122.
[174]Ibid: 121-22.

Example 3.17 – Cox's streaming in "Copacabana" from Saudades do Brazil, mm. 16-33[175]



[175]Ibid: 123-24.

Example 3.18 - Common-tone focused chart for Saudades do Brazil, "Copacabana," mm. 1-37, based on Cox's analysis[176]

	G	***G#***	***A***	***A#***	***B***	***C***	***C#***	***D***	***D#***	***E***	***F***	***F#***
B Major	***Ø***	***6***	***ø***	***7***	***1***	***ø***	***2***	***ø***	***3***	***4***	***ø***	***5***
C Major	***5***	***Ø***	***6***	***ø***	***7***	***1***	***ø***	***2***	***ø***	***3***	***4***	***ø***
G Major	1	Ø	2	ø	3	4	ø	5	ø	6	ø	7

Example 3.19 – Cox's chart comparing harmonic function between streams for Saudades do Brazil, "Copacabana," mm. 1-37[177]

AC2	***C major***	***vi - IV - V-V vi - IV- V - I***
AC1	***B major***	***V/ii – ii -V-V V/ii – ii – V – I***
RC	***G major***	***V/ii – ii – V- I V/ii – ii – V – I***

Cox notes that the harmonic rhythm for all three streams is identical and repeats in four-bar increments, also noting that the contour of the harmonic progression of the two accompanimental streams (RC and AC1) are almost identical regarding the root

[176] This chart, by this author, is based on Cox's "pitch-class manifestation" and "tonal functions of the combined noteclass aggregate" charts. Ibid: 131-132.
[177] Ibid: 132.

movement for each chord.[178] While the melody stream in C major differs from the two accompanimental ones, the traditional cadential progressions are concurrent in all three streams. The second half of the eight-bar harmonic progression contains identical cadences types and, as a result, concurrent progressions of predominant, dominant and tonic (IV-V-I and ii-V-I, respectively). Overall, the three streams are in phase on both the phrase and function levels.

In conclusion, Cox has created an accurate classification system for identifying concurrent bitonal and polytonal streaming. Her work provides the basis for taking polytonal analysis to a new level by discussing the consequences of key interactions and using her classification system as background information for creating a linear analysis.

LINEAR ANALYSIS OF POLYTONALITY

Peter Kaminsky

In his 2004 article "Ravel's late music and the problem of 'Polytonality,'" Peter Kaminsky strives to create a new definition of bitonality to advance analyses of early twentieth-century French music.[179] While his article focuses on the music of Ravel, he also explores Milhaud's concepts of polytonality through the composer's writings and his analysis of two movements from Saudades do Brazil (1920-21). Kaminsky uses cognitive studies to promote the existence of polytonality, and then provides analyses of polytonal works through linear means. Although polytonality exists in musical works of the 1920s, Kaminsky's analytic style accounts only for bitonal works, as he limits his

[178]Ibid: 132.
[179] Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 237-264.

definition of polytonality to only two keys. Kaminsky's decision to limit his definition of polytonality stems from his objection to the term, which suggests events that exist in both vertical and horizontal pitch space.[180] Kaminsky's two criteria for polytonal analysis comprise register differentiation and bass line function. These criteria can be seen in Kaminsky's definition of polytonality and dissonant superimposition, his interpretation of Milhaud's 1923 article "Polytonalité et atonalité," his views regarding polytonal scholarship, and the results of his analysis of Saudades do Brazil.

Kaminsky constructs his definition of polytonality by first assessing polychordal and contrapuntal polytonality. The musical materials used to create these textures include "polychords, the superimposition of different scales or scale fragments, the superimposition of different transpositions of the same scale type, and the mere presence of simultaneous different key signatures."[181] Kaminsky takes the view that if a work has more than one pitch center, tonal hierarchy is destroyed.[182] Consequently, Kaminsky believes that polytonality may be better expressed through the term "dissonant superimposition," which produces two paradigms. The first paradigm of superimposition is explained as monotonal and the second as polytonal. The monotonal view is described as one in which the "bass assimilates the upper-voice dissonances," while polytonal textures comprise, "a dual organization, which features a primary and secondary pitch priority (in place of the term "polytonality")."[183]

---

[180] Kaminsky's definition of polytonality throughout his study is limited to bitonality. Therefore, these terms are interchangeable to him. However, Kaminsky also acknowledges that both Ravel and Milhaud composed works in up to five concurrent keys. Ibid: 237.

[181] Ibid: 237-238.

[182] Ibid: 238. Also see James Baker, "Post-Tonal voice-Leading," in *Models of Musical Analysis: Early Twentieth-Century Music,* Ed., Jonathan Dunsby (Oxford: Basil Blackwell, 1993): 20-41. As Baker believes that works with multiple tonal centers break down a tonal hierarchy, he probably would have been one of the scholars of the 1920s who placed polytonality in the atonal realm.

[183] Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 237.

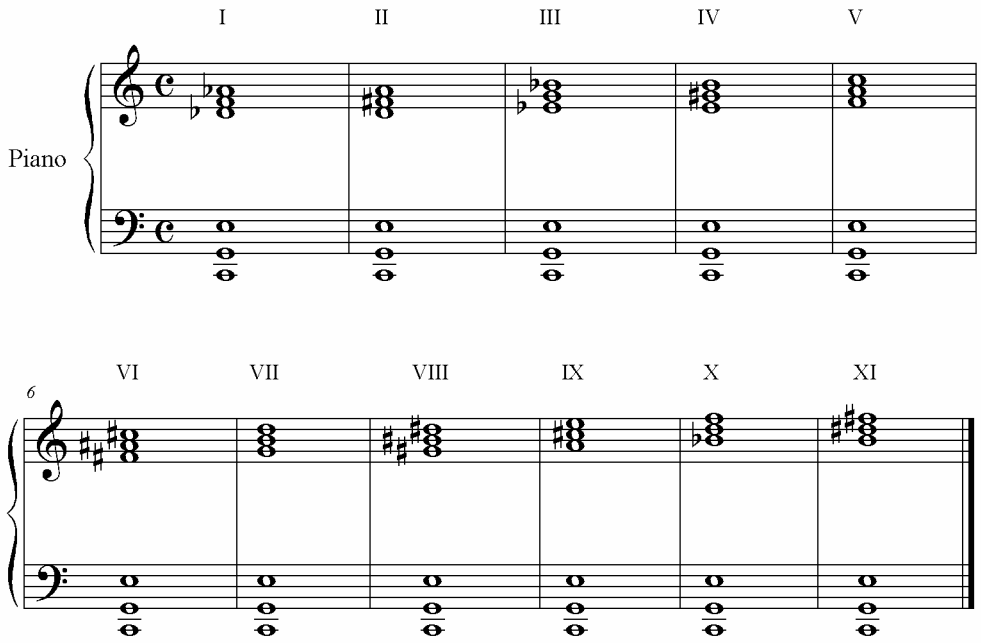
After defining polytonality, Kaminsky's argument continues with a discussion of Milhaud's 1923 article "Polytonalité et atonalité" to illustrate that Milhaud's methods could be used to support both the monotonal and polytonal styles of "dissonant superimposition" described above. In order to forward this argument, Kaminsky reframes Milhaud's compositional practices, using the term polytonality to refer to polychords and the term polymodality to refer to contrapuntal tonality. While this view is in perfect harmony with the spirit of the assertions Milhaud made in "Polytonalité et atonalité," it omits Milhaud's arguments for the contrapuntal interactions of superimposed melodic strata. As a result, Kaminsky analyzes contrapuntal polytonality through horizontal means, utilizing neither the harmonic support of the jalón vertical, nor the focus upon vertical slicing at important structural points in a work. Consequently, Kaminsky only accepts polychordal writing as an expression of polytonality.[184] Therefore, polychords are considered polytonal, while contrapuntal polytonality is not. When Kaminsky analyzes contrapuntal polytonality, he reframes it in a polychordal context if he views a passage as being written in multiple keys.[185]

Kaminsky asserts that in his article "Polytonalité et atonalité" Milhaud specifically delineated tonal streams occurring in the treble versus those in the bass. While Milhaud did utilize registral differences to delineate tonal areas, these differences were not always reduced to the two-stream model that Kaminsky proposes. Kaminsky's model contains one stream in the treble and a second, which rules the texture, in the bass.. In order to provide this two-stream model, Kaminsky discusses the two main examples Milhaud provided for creating bitonal structures. Example 3.20 combines major triad pairs for every root combination, with the bass remaining on C major. The second

[184]Ibid: 238.
[185] As in Kaminsky's analysis of "Botafogo" from *Saudades do Brazil.* Ibid: 243.

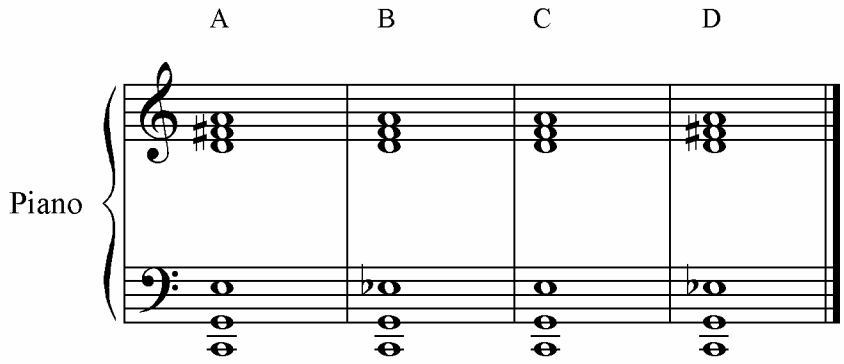
example (Ex. 3.21) combines of C major and minor and D major and minor triads, which show all possible combinations of two modalities. As both examples are voiced on the grand staff, the combinations of triads/keys contain one chord in the treble and another in the bass. In Part B, the first two combinations have identical major triads in the treble and bass, whereas the final two sections combine one major and one minor triad. Therefore, Kaminsky asserts that one should place each key area in a different register, with one key in the treble and another in the bass for all bitonal textures. Since the treble and bass pitch areas are separate, Kaminsky asserts that the first key in the treble should be assimilated into the second key.

Example 3.20 – Milhaud's Bitonal Combinations of Major Triads[186]



[186]This example is identical to Milhaud's Example 2.1 in Chapter 2. Darius Milhaud, "Polytonalité et atonalité." *Revue Musicale,* 2:4 (1923): 32. Also see Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 239.

Example 3.21 - Milhaud's Root Combinations for Bitonal Textures[187]



of the bass.[188] As Milhaud placed his bitonal combinations on the grand staff and retained the C triad in the bass throughout, Kaminsky takes this as evidence for both registral separation and bass priority in his study of bitonal structures. However, Milhaud provided no commentary on the arrangement of these two examples, nor a preferred contrapuntal stream. Milhaud also provided examples of key/mode combinations available in three keys in his 1923 article.[189]

Kaminsky also argues for the primacy of the bass line and registral separation by using examples from current music analysis and cognitive studies. He begins by examining the work of Deborah Mawer, thereby using her views to support his own. According to Kaminsky, scholars such as Mawer have outlined three main arguments against Milhaud's definition of polytonality. These arguments interpret polytonality as a classification system without taking the context of the work into account, integrate all pitch materials into a single scalar system (such as the octatonic), and determine that the

[187]This example is identical to Milhaud's Example 2.2 in Chapter 2. Darius Milhaud, "Polytonalité et atonalité." *Revue Musicale,* 2:4 (1923): 33. Also see Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 239.

[188]Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 238.

[189] Milhaud, Darius. "Polytonalité et atonalité." *Revue Musicale,* 2:4 (1923): 36.

role of the bass line provides the power needed to integrate all dissonant characteristics into a single harmonic context.[190] Kaminsky only accepts bass-line primacy. Tymoczko's studies of bass-line function also support Kaminsky's argument that polychordal writing integrates two keys with a single bass line. For Kaminsky, other authors who support registral separation include Dmitri Tymoczko and Ludmila Ulehla,[191] Ernst Terhardt and David Huron's cognition experiments, and William F. Thompson and Shulamit Mor's noted study on Stravinsky's "Petrushka" chord.[192] The integration of these authors into his theory leads Kaminsky to follow a system that places a primary priority on the bass and a secondary priority on the treble. As a result, Kaminsky prioritizes the bass line over other elements in polytonal textures.

In order to understand Kaminsky's methodology on a practical level, one must examine his analysis of Milhaud's Saudades do Brazil. While Kaminsky favors polychords in his analysis of bitonal works, his system for determining whether a texture is bitonal or polychordal seems to be based on a reinterpretation of common tones between each key pair, instead of textural difference or registral separation. Although Kaminsky does not make this explicit, works that create more distant key relationships or do not have foundational pitches of the scale in common (such as the tonic, dominant, and subdominant), are more likely to be classified as bitonal, while more closely related keys are considered to be tonal.

---

[190]Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 239.

[191] See Dmitri Tymoczko, "Stravinsky and the Octatonic: A Reconsideration," *Music Theory Spectrum* 24.1 (2002): 68-102; and Ludmila Ulehla, *Contemporary Harmony* (New York: The Free Press, 1966).

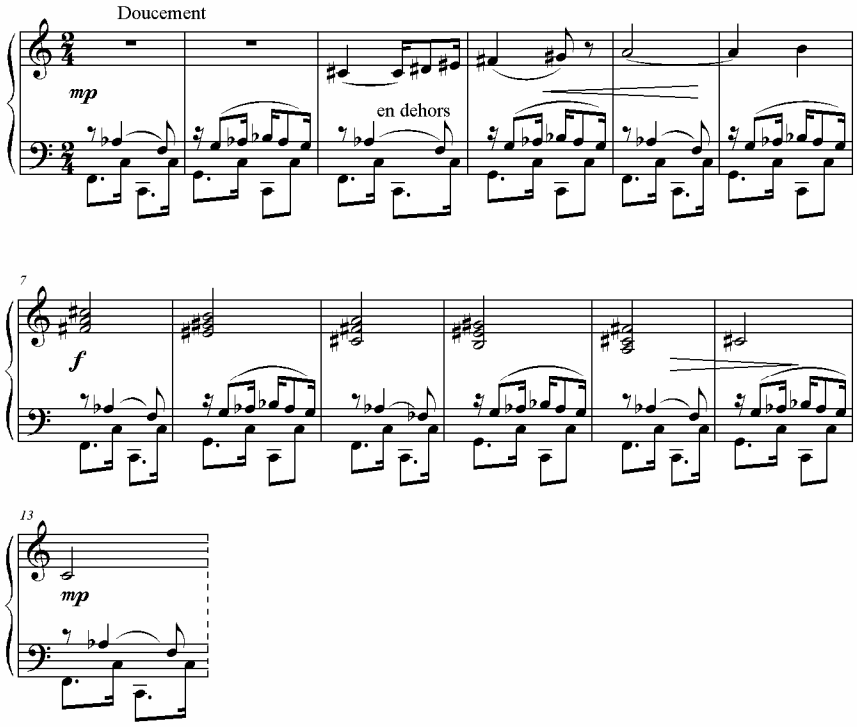
[192] See Ernst Terhardt, "Algorithm for extraction of pitch and pitch salience form complex tonal signals," *Journal of the Acoustical Society of America* 71:3 (1982): 679-88; David Huron, "Voice denumerability in polyphonic music of homogeneous timbres," *Music Perception* 6:4 (1989): 361-82; and William F. Thompson and Shulamit Mor, "A perceptual investigation of polytonality," *Psychological Research-Psychologie Forschung* 54 (1992): 60-71.

Kaminsky's second example from Saudades do Brazil comprises the first thirteen measures of "Botafago." This movement pits the two keys of F minor and F# minor against each other, as in Example 3.22. While Kaminsky recognizes that there are two separate key streams in Example 3.22, he organizes his analysis vertically through the use of "double inflections" (in the manner of Ulehla), "designating the simultaneous sounding of different qualities of the same intervallic distance from the root."[193] In this excerpt, the "double inflections" function as the same scale degree in each key, and therefore may be linked.

However, an analysis based on "double inflection" changes the concurrent harmonic functions. As Kaminsky combines the streams through the use of a double inflection, he must choose a single function for each combined vertical. As shown in Example 3.23, Kaminsky's chord choices begin with similar functions in the first half of the example, but diverge from measure 8 through to the end of the example. Milhaud ties the two streams together throughout Saudades do Brazil by utilizing an identical chord function in the treble and bass streams. The places where the chord function of predominant, dominant, or tonic does not correspond between streams is usually confined to one half to one full measure per phrase, at most. An alternate reading of Milhaud's harmonic functions in measures 1-13 of "Botafogo" is shown in Example 3.24. In Example 3.24, the differences in chord function between the two steams are minimized. The first phrase features an out-of-phase element for one and a half measures, while the second phrase only features one measure without corresponding harmonic function. Consequently, one must search for a manner of addressing the vertical in Milhaud's polytonal textures without sacrificing the melodic and harmonic motion of each stream.

[193]Ibid: 242 and Ludmila Ulehla, *Contemporary Harmony* (New York: The Free Press, 1966): 286.

Example 3.22 – Saudades do Brazil, "Botafogo," mm. 1-13[194]



While creating an analytical methodology that prioritizes polychords and register streams works well on pieces in miniature contexts (such as Milhaud's Saudades do Brazil), it would not be effective as a theory for large-scale polytonal works, such as La Création du monde. It neither accounts for contrapuntal polytonality, nor for polytonal streams that incorporate more than two keys. The dual-stream system forces the analyst to prioritize the vertical over the horizontal, which does not leave room for contrapuntal issues to be resolved on the large-scale or to analyze music that is not written in a cantilena style.

[194]Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 243.

Example 3.23 - Kaminsky's harmonic progression for mm. 1-13 of "Botafogo"

Measure:	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***
F#m	***X***	***X***	***i V7***	***i***	***i***	***iv or V7***	***i V7***	***i***	***V7***	***i***	***V7***	***X***	***X***
Fm	***i***	***i***	***i***	***(ii) V7***	***i***	***ii V7***	***i***	***ii V7***	***I***	***ii V7***	***i***	***ii V7***	***i***

Example 3.24 – Harmonic analysis of Saudades do Brazil, "Botofogo," mm. 1-13

Measure	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***
F#m	***X***	***X***	***i-V7***	***i***	***i***	***iv or V7***	***i***	***vii°***	***i***	***vii°***	***i***	***i***	***F: i***
Fm	***I***	***i***	***I***	***V7***	***i***	***V7***	***i***	***V7***	***i***	***V7***	***i***	***V7***	***i***

When a movement collapses from bitonality into a primary tonality, it is necessary to know how the resolution between the two streams occurred. In Milhaud's larger works, the composer created concurrent bass streams that would not fit into this categorization, even if other works of a polytonal scope do behave in this manner.[195] In conclusion, Kaminsky's method has added many needed observations and a new analytic style for small-scale bitonal works. Because he limited the number of keys to bitonality, he was

[195]Peter Kaminsky, "Ravel's Late Music and the Problem of 'Polytonality,'" *Music Theory Spectrum* 26:2 (Fall 2004): 240-244.

able to vertically slice works to provide both a vertical and horizontal analysis throughout. However, prioritizing the vertical does lead to the sacrifice of harmonic functions that may tie the two streams together. While Kaminsky's method is successful for small-scale structures, one might discard bass priority in larger structures where multiple bass streams are present.

In conclusion, scholars who use both set theory and tonal analysis have made significant contributions to the study of polytonal textures in Milhaud's music. Some scholars, such as Keith W. Daniel and Barbara Mawer, have integrated pitch materials from multiple keys by using the classification system of pitch-class set analysis. Other scholars, such as Jeremy Drake and Sarah Sedman Yang, have focused on creating a vocabulary for acceptable horizontal streams that they have then analyzed with a descriptive, text-based analytical style. Virginia Yvonne Cox has contributed to this study by combining concepts used in both pitch-class set and descriptive analysis, and by establishing a descriptive classification system for polytonal textures. In contrast to the other scholars' work in this chapter, Kaminsky's broad influences have led him towards an integrative linear analysis style for bitonal textures. While these scholars have all made great inroads for the analysis of Milhaud's polytonal compositions, there are still many issues that need to be addressed. At present, scholars do not agree on streaming techniques or the role of the bass line in polytonal structures. An approach that integrates each stream according to its harmonic and melodic content would perhaps be beneficial. This approach would acknowledge the role of each horizontal stream in balance without prioritizing the bass line unless appropriate.

Chapter 4: An Axial-Based Analysis of Milhaud's Polytonal Textures: La Création du monde, Opus 81

Milhaud's polytonal music has proved to be enigmatic to both Milhaud's Parisian contemporaries in the 1920s and to current scholars. The debate regarding the polytonality or atonality of Milhaud's music persists in analyses today. This is reflected in current treatments, the most forward-thinking of which restrict themselves to either a set-theory or a post-Schenkerian approach. Although the set-theoretical approach successfully describes aggregate harmonies between and among contrapuntal strands, it does so at the cost of addressing the play of opposing tonalities. The post-Schenkerian approach remains tied to the concept of monotonality, and overrides competing tonalities to prioritize a primary one. Consequently, a new analytical approach, one which will fully respect the tonal multiplicity of Milhaud's music, is necessary.

This thesis proposes that there is a solution that accurately describes Milhaud's polytonal textures and retains the integrity of Milhaud's musical style. This approach simultaneously affirms the irreducibility of the competing tonalities and suggests ways of bringing them into meaningful relationship with each other through two related concepts: Charles Koechlin's *jalón vertical* and Joseph N. Straus' tonal axis. Straus' tonal axis is created by overlapping triads to create a major or minor seventh chord. The axis determines the prevailing harmonies of the work and provides a way to track polarity

among groups of keys.[196] Koechlin's *jalón vertical*, or vertical stake, utilizes polychords to anchor harmonies at significant points within a work. Koechlin's identification of the *jalón vertical* illuminated harmonic progression within polytonal contexts.[197] Concurrent use of Koechlin's vertical stake to illustrate important surface-level structural points within a work and Straus' axial theory to illustrate middleground and background levels explains Milhaud's structural priorities for polytonal writing while retaining the integrity of Milhaud's contrapuntal style of composition. Examples of Milhaud's contrapuntal polytonal style of writing will be included in this chapter in order to illustrate how the middleground groupings of keys are manifested on the foreground level.

Although prior scholarship on Milhaud's *La Création du monde* is diverse, it can be placed within three general categories: the historical significance and cultural context of *La Création du monde*; descriptive and form analysis; and jazz issues. The first group of historical studies focuses on the inception of the *Ballets Suédois,* including the significance of *La Création du monde* within its cultural and artistic context. Some scholars who approach *La Création* in this manner include Sally Banes, Charles Richard Batson, Bengt Nils Richard Hager, James Harding, Manfred Kelkel, and Hanning Rischbeiter.[198] The second group of scholars can be divided by those who

---

[196]Joseph N. Straus, "Stravinsky's 'Tonal Axis,'" *The Journal of Music Theory* 26:2 (Autumn, 1982): 261-290.

[197]Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 257-260. For a full discussion of Koechlin's views of polytonality, please see Chapter 1.

[198]Sally Banes, "An Introduction to the Ballets Suédois," *Ballet Review* 7:2-3 (1978-79): 28-59; Nancy Van Norman Baer, *Paris Modern: The Swedish Ballet 1920-1925* (San Francisco: Fine Arts Museums of San Francisco, distributed by the University of Washington Press, 1995); Charles Richard Batson, "Words Into Flesh: Parisian Dance Theater, 1911-1924," (PhD diss, University of Illinois at Urbana-Champaign, 1997); Bengt Nils Richard Hager, *Ballets Suédois,* trans Ruth Sharman (London: Thames and Hudson, 1990); James Harding, *The Ox on the Roof: Scenes from Musical Life in Paris in the Twenties* (New York: St. Martin's Press, 1972): 132-135; Manfred Kelkel, *La Musique de ballet en France de la belle époque aux années folles* (Paris: Libraire Philosophie J. Vrin, 1992); and Henning Rischbeiter, *Art and Stage in the*

discuss the thematic content of *La Création du monde* and those who parse its formal outlines, for either the fugue section or the overall contour of the work. The former includes Paul Collaer, Warren Howe, William R. Martin and Julius Drossin, while the latter includes Stephanie Anne Jordan, Barbara L. Kelly, and Sandra Sedman Yang.[199] Finally, multiple authors discuss the issue of jazz as it relates to *La Création du monde*. Some of these scholars include Richard Brender, Geoffrey Jennings Haydon, Nancy Perloff, Elke Siepp, and Glenn Watkins.[200] While these scholars examine topics such as the blues scale, instrumentation, rhythms, and W.C. Handy's "St. Louis Blues" (upon which the fugue theme is based), none of these scholars analyze Milhaud's ballet in detail. Unfortunately, none of these studies focuses on the construction of *La Création du monde* in great detail. Scholars who push the boundaries regarding analysis of Milhaud's polytonal compositions are discussed in Chapter 3.

Twentieth Century: Painters and Sculptors Work for the Theater, trans Michael Bullock (Greenwich, CT: New York Graphic Society, 1968).

[199]Paul Collaer, *Darius Milhaud* (Paris: Editions Slatkine, 1982): 116-122; Peter S. Hansen, *An Introduction to Twentieth Century Music,* 3rd Edn (Boston: Allyn and Bacon, Inc, 1978): 129-133; Warren Howe, "The Percussionist's guide to Darius Milhaud's *La Création du monde,*" *Percussionist* 17:1(Fall 1979): 37-50; William R. Martin and Julius Drossin, *Music of the Twentieth Century* (Englewood Cliffs, NJ: Prentice Hall, Inc., 1980): 196-199; Stephanie Anne Jordan, "The Early Ballets of Darius Milhaud: 1918-1933" (MA thesis, The University of California at Los Angeles, 1974); Barbara L. Kelly, *Tradition and Style in the Works of Darius Milhaud: 1912-1939* (Burlington, VT: Ashgate, 2003): 171-174; and Sarah Sedman Yang, "The Composer and Dance Collaboration in the Twentieth Century: Darius Milhaud's Ballets, 1918-1958" (PhD diss, The University of California at Los Angeles, 1997).

[200]Richard Brender, "Reinventing Africa in Their Own Image: The Ballets Suédois' 'Ballet nègre,' *La Création du monde,*" *Dance Chronicle* 9:1(1986): 119-147; Geoffrey Jennings Haydon, "A Study of the Exchange of Influences between the Music of the Early Twentieth-Century Parisian Composers and Ragtime, Blues, and Early Jazz" (DMA treatise, the University of Texas at Austin, 1992): 47-54; Nancy Perloff, *Art and the Everyday: Popular entertainment and the circle of Erik Satie* (New York: Oxford University Press, 1991): 201-05; Elke Siepp, *Die Ballettwerke von Darius Milhaud: Untersuchungen zur Typologie und Bedeutung im Rahmen der französischen Ballettkunst als "Zeitkunst" (1910-1960),* (Tutsing: Verlegt bei Hans Schneider, 1996)78-87; and Glenn Watkins, *Pyramids at the Louvre: Music, Culture, and Collage from Stravinsky to the Postmodernists,* (Cambridge, MA: The Belknap Press of Harvard University Press, 1994): 112-133.

After surveying the literature for significant music analyses of *La Création du monde,* only Deborah Mawer's "Case Study 5. Blues and Other Modal Formations in *La Creation Du monde: Suite de concert,* Op. 81b" (1926) published in her 1997 book, *Darius Milhaud: Modality & Structure in Music of the 1920s*, attempts to explain the work in depth. Mawer, however, analyzes the concert suite, which was written in 1926, and not the original ballet, which premiered in 1923. In addition, it should be noted that Milhaud's attitudes toward jazz changed rapidly in the 1920s, especially after the composition of *La Création du monde.*[201] As in her analysis of *Saudades do Brazil,* Mawer takes a multi-focal approach to *La Création du monde*, with impressive results. Mawer derives her generic progressions of Milhaud's ballet by analyzing the surface structure of the work through segmentations of the primary melodic streams of the piece. While she acknowledges that the horizontal streams are tonal, the use of genera designations to label the overall texture is a vertical and atonal process. Her segmentations are supported by Hodeir's discussion of *La Création du monde,* which focuses on Milhaud's use of the blues scale within the ballet.[202] Mawer also discusses the use of altered classical forms as an organizing principle of the ballet, albeit with no tonal implications for each movement of the concert suite. As a result, Mawer provides an analysis of *La Création du monde* that combines pitch-class set analysis along with some of the traditional organizing principles of classical form. Her analysis focuses on the form of each movement, melodic segmentation, and pitch-class set analyses of this

---

[201]Jeremy Drake, "Darius Milhaud," *Grove Music Online,* ed. L. Macy (accessed 13 Dec 2005), <http://www.grovemusic.com>.
[202]André Hodeir, *Jazz: Its Evolution and Essence,* trans David Noakes (New York: Grove Press Inc., 1956): 253-260.

segmentation in order to obtain a generic progression throughout the work. While Mawer's chapter on "Brazilian and Jazz-Inspired Music: Blues Scale" utilizes similar approaches to *Saudades do Brazil* and *La Création du monde*, she does not approach the concert suite with foreground axial analysis, as in *Saudades do Brazil*. It is but a small step from Mawer's axial commentary of *Saudades do Brazil* and Milhaud's statements that polytonality issues from seventh chords, to the analysis of Milhaud's polytonal works using background axial structures.

Consequently, this study will illustrate the irreducibility of Milhaud's contrapuntal polytonal writing in *La Création du monde* by synthesizing several relevant methods. Straus' theory will be utilized on the background and middleground levels. Linear analysis will be used to show how the concurrent key progressions found in the axes are manifested on the foreground level. Koechlin's vertical stake will be used to illustrate important harmonic structural points within *La Création du monde* that echo, but do not exactly replicate the axis on the foreground level.

At the background level of *La Création du monde,* it is apparent that the work is organized around two seventh chords, which comprise the primary and secondary axes. The composition and function of competing axes within a musical work are defined by Straus. He states that three criteria must be present for an axis to function within a piece of music:

1. It must consist of overlapping major and minor triads (for example, EGBD, EbGBbD, and so forth). In other words, it must have the appearance of a minor or a major seventh chord.
2. It must function in the piece as a referential sonority. It must occur prominently as a discrete harmony within the piece, particularly in cadential situations. It must be the essential harmonic generator of the piece; other harmonies derive from and relate to it.
3. It must embody a conflict or polarity between its two constituent triads. All axes have the appearance of seventh chords, but not all seventh chords function as tonal axes. Each of the overlapping triads that constitute the axis must be shown to have a palpable identity and centricity of its own.[203]

This study will focus on the first and third criteria of Straus' definition of an axis. As Milhaud wrote in contrapuntally in concurrent multiple keys, the foreground manifestation of the axis does not work in the manner as outlined by Straus, although the structural points illustrated by Koechlin's vertical stake do contain similarities to the primary and secondary axis.

La Création du monde uses two seventh chords to create a primary and secondary axis that vie for prominence within the work. The seventh chord that comprises the primary axis uses the pitches D-F-A-C, while the seventh chord that comprises the secondary axis uses the pitches F#-A#-C#-E#, with F/E# functioning as the common tone between the two axes. Milhaud's choice of using two triads in a double chromatic mediant relationship (F# Major and D minor) connected by the seventh of the secondary axis supports the irreducibility of his polytonal construction. The construction of the background axes is illustrated in Example 4.1. The primary axis is a minor seventh chord, while the secondary axis is a major seventh chord. Each individual axis fulfills

[203]Joseph Straus, "Stravinsky's Tonal Axis," *The Journal of Music Theory* 26:2 (Autumn 1982): 265.

Straus' criteria of a major or minor seventh chord. This particular axial relationship is unique: as there are multiple concurrent key areas available, there are two axes created out of seventh chords instead of a single overlapping of closely-related triads. It is also important to note that, in Example 4.1 and in subsequent examples in this chapter, the keys illustrated on the axis may be represented by the given pitches or their enharmonic equivalent. For example, all of the manifestations of the key of E# in *La Création du monde* are represented by the key of F, as the key of E# does not exist. In the same way, manifestations of A# on a local level could be written in A# if they represent the minor mode. However, it is more practical to represent A# as Bb in the score, both for functionality and legibility of said tonic.

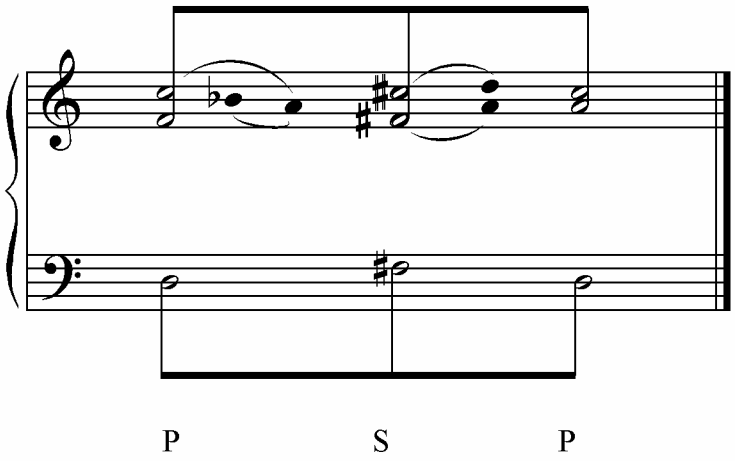
Example 4.1 – Seventh Axes for La Création du monde

Primary:				**F**	**A**	**C**	**D**
Secondary:	**F#**	**A#**	**C#**	**E# (F)**			

The background movement from the primary to the secondary axis and back is illustrated in Example 4.2. The background movement of establishing an axis, departing, and returning follows the third criterion of each axis having its own identity within a musical work. While the first statement of the primary axis is missing the fifth, or the key of A, this key is established before moving on to the statement of the secondary axis. Notably, the first statement of the primary axis actually is a combination of the primary

and secondary axes, through the use of the key of F. Concurrent use of the keys of D and F at the beginning of the work obscure the primary axis. At the conclusion of the work, the axis on D is considered to be the primary one, as all of the keys of the axis (excluding the common tone/key of F) are present. This analysis reflects Milhaud's statement that the keys of his polytonal works were organized through seventh chords.[204]

Example 4.2 – Background Graph of La Création du monde



On the middleground level, the axes are expressed by the choice of concurrent multiple keys, the majority of which belong to either the primary or secondary axis. The axial relationships serve to produce varied mixtures of key relationships while still promoting axial polarity. In this analysis of *La Création du monde*, the axial movement

[204]Claude Rostand, *Darius Milhaud: Entretiens avec Claude Rostand* (Paris: René Julliard, 1952):54.

on the middleground levels established through polytonality will be discussed on a movement-by-movement basis.

The foreground of Milhaud's polytonal works contains two main textural features. The first is "contrapuntal polytonality," through which Milhaud usually placed each instrumental line in its own key.[205] The second is Koechlin's vertical stake. Instead of using the axis as the foundational harmony on the surface level, Milhaud uses a vertical stake to anchor the harmonies at transitional points in *La Création du monde.* The points along the axis are expressed through choice of key, instead of the axis existing as two concrete vertical sonorities used throughout the work. Consequently, on the surface level, the work is organized primarily through one or more concurrent motives, while the ballet is harmonically anchored at important structural points with the vertical stake.

Koechlin's vertical stake is created from sections of polychordal writing that are interspersed with contrapuntal writing. The polychordal writing is considered structurally important, as it creates the only places within a work that are ruled by harmony instead of melody. Hence, the vertical use of the polychords helps to define the structure. Koechlin stated that these polychords comprise three main categories. First, a stake may be the combination of two or three major or minor triads. Second, it may be created out of the combination of a major or minor triad and of a chord that has a seventh or a diminished seventh. Third, it may be created from the combination of a major or minor triad, a seventh chord, and a chord of another formation (such as a quartal chord).[206]

---

[205]Darius Milhaud, "Polytonalité et atonalité," *Revue Musicale,* 2:4 (1923): 40.

[206] Charles Koechlin, *Traité de l'Harmonie*, Vol II (Paris: Max Eschig & Cie, Éditeurs, 1930): 257.

La Création du monde uses of polychords as structural harmonies that link one movement to the next. While there is a vertical stake that connects one section to the next in the Prelude, there is not a stake connecting the Prelude and the Fugue (Mvt I). This follows the tradition of pairing a prelude and fugue in a single key before moving on to the next pairing, a practice which goes back to J.S. Bach's *Well-Tempered Clavier.* However, the remainder of the movements are each linked with a vertical stake. Links are found between Movements I and II, II and III, III and IV, and IV and V. The complexity of these polychords works in a symmetrical manner. In other words, simpler polychords that are created out of two triads, described in Koechlin's first category, above, are found near the beginning and end of the ballet. Stakes in the middle of the work are comprised of polychords that use either the chromatic mediant or double chromatic mediant relationship. Once again, using triads related by chromatic mediant assures that the polytonal texture will not be reduced to a single key area. Milhaud also used a vertical stake as the final sonority in the ballet, thus fusing equal elements of the primary and secondary axes.

In sum, this analysis will show the irreducibility of Milhaud's contrapuntal polytonal writing by examining each movement of *La Creation du monde* for three main concepts. First, the middleground progression of keys for each movement will be discussed. Second, foreground contrapuntal writing will be examined to see how each key of the middleground is manifested. Third, the vertical stakes connecting each movement and their relationship to the original axis will be investigated.

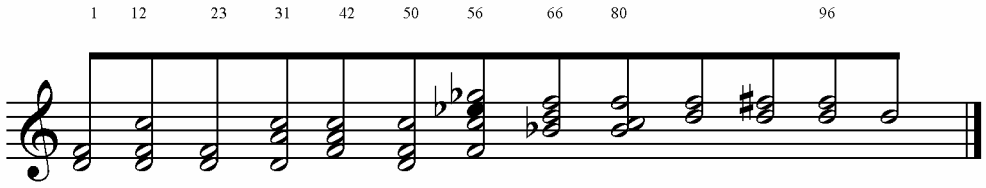
PRELUDE

In the Prelude, the axial relationships for the work are set up, establishing both the primary and secondary axes within a hierarchy. This will be illustrated on the middleground level through an axial analysis of key groups and on the foreground level through linear graphs that show the realization of these key combinations. The first occurrence of the vertical stake is also found in the Prelude, where it serves to link sections within the movement.

In the axial graphs that follow, pitches that belong to either the primary or secondary axis will be expressed in open noteheads. Filled-in noteheads represent key areas that are not members of the primary or secondary axis. Enharmonic equivalence of keys is also present. For example, the Bbs in the graph below, as well as in subsequent graphs, represent the A# of the secondary axis. The common tone between axes, F/E#, will be notated on the graphs as F throughout. Accidentals in the axial graphs only refer to the notehead to which they are attached. Finally, the primary and secondary axes may be abbreviated to P axis and S axis, respectively. The key and axis movement in the Prelude is illustrated in Example 4.3.

The primary axis in *La Création du monde* is established over the secondary axis in two ways. First, the Prelude establishes the complete primary axis of D-F-A-C but, by omitting the key of C#, only three-quarters of the secondary axis F#-A#-C#-E#. Second, the movement ends on the tonic of D, the lowest tone of the primary axis. Consequently, the surface level conflict between F and F# in the Prelude also represents the conflict between the primary and secondary axes.

Example 4.3 – Axial Relationships in the Prelude, mm. 1-106



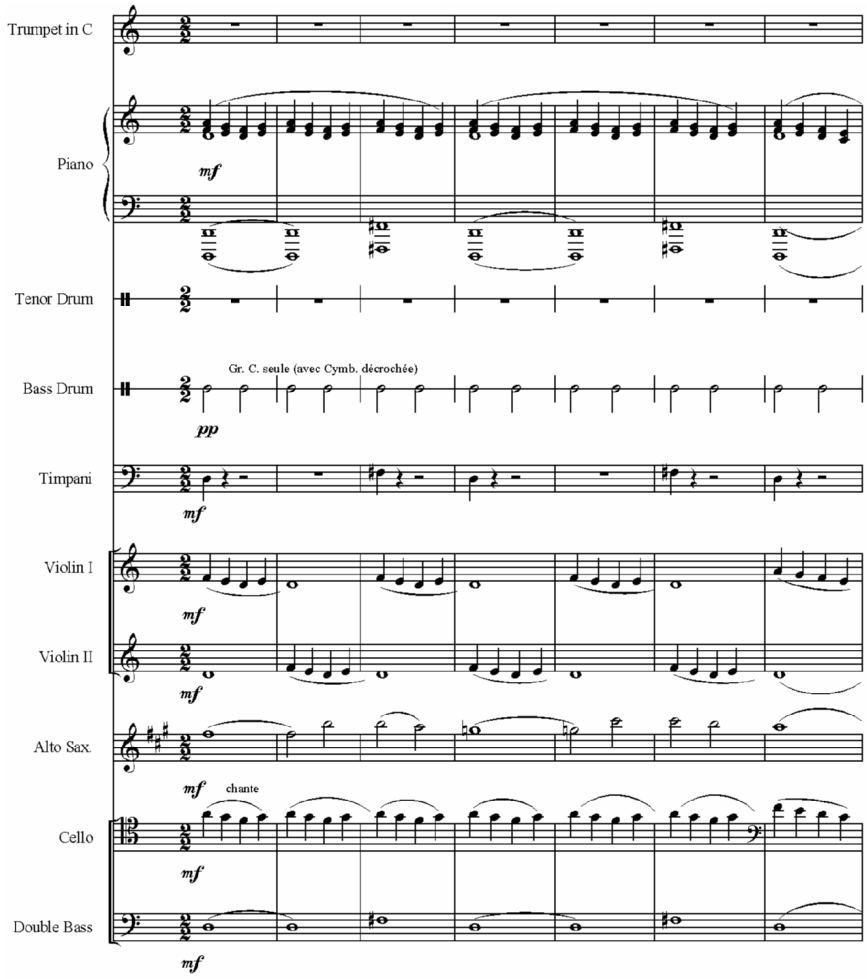
While there are thirteen sets of key areas in the Prelude, the middle set of keys is the most dissonant, as it pits F and Gb, a half-step apart, against each other. Both the use of the minor second at the center of the movement (mm.56-65) and the use of thirteen key combinations suggests a symmetrical organization.

Examples 4.4a and 4.4b illustrate the establishment of concurrent axial keys in the foreground of the Prelude (mm. 1-25), on a horizontal level. The examples demonstrate that *La Création du monde* establishes the relative key relationship of d minor and F major to link the two axes. It shows that both axes are present from the beginning of the work, with D from the primary axis and F utilized as the common tone between the two axes. Other key areas that support the overall axial progression of the work, such as the key of A#/Bb, are also introduced by adding keys areas from the secondary axis. Therefore, the duality of the excerpt is expressed through axes on the background level, and streaming on the foreground level.

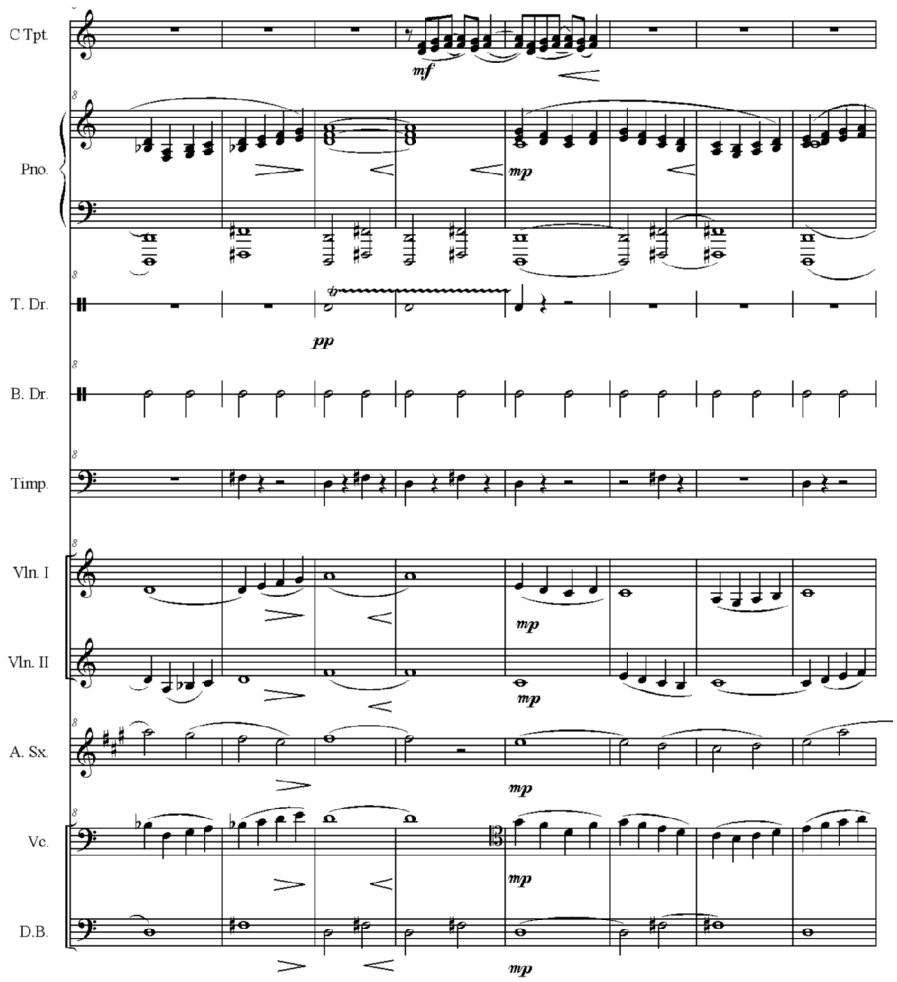
The use of closely related keys in the Prelude provides tonal ambiguity in the primary theme line, in order to gradually introduce the listener to progressively more complex polytonal textures. Example 4.4a employs the third type of streaming, as

identified by Cox, which consists of one melodic stream and two accompanimental ones. The melodic stream is placed in the Eb saxophone, which replaces the viola in the string

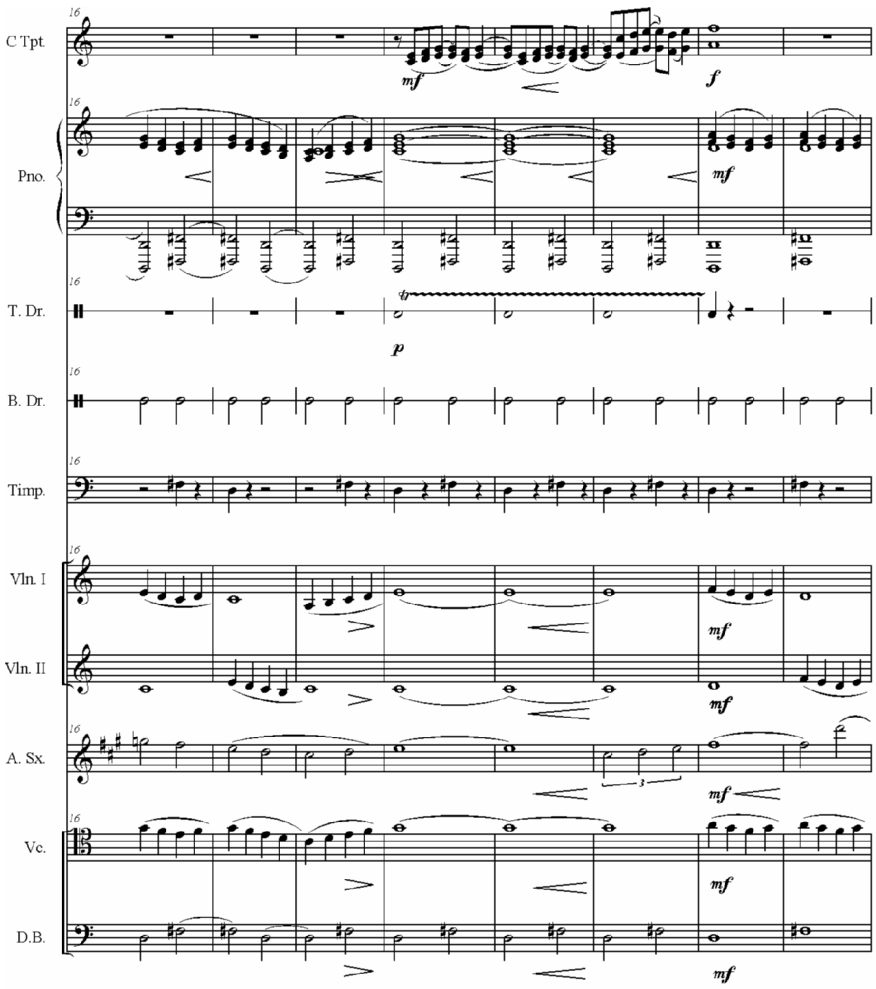
Example 4.4a – Prelude, La Création du monde, mm. 1-25



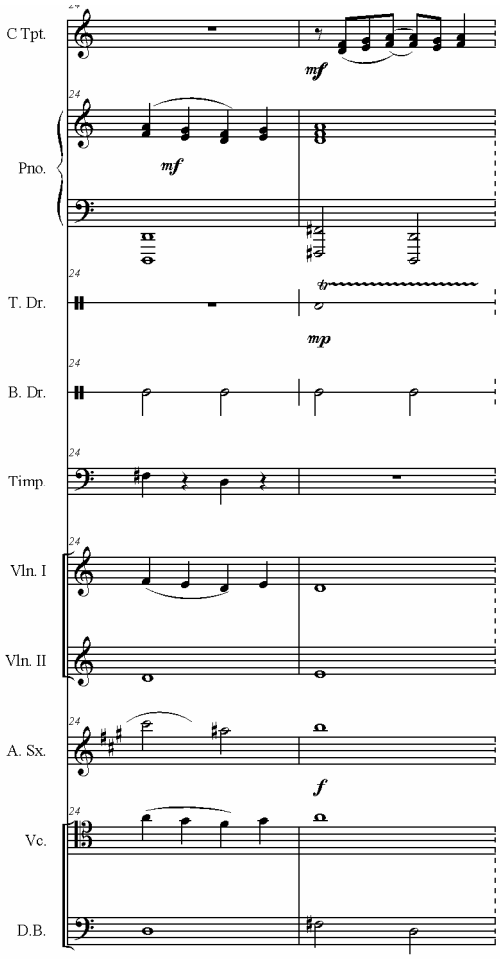
Example 4.4a – Prelude, La Création du monde, mm. 1-25, continued



Example 4.4a – Prelude, La Création du monde, mm. 1-25, continued



Example 4.4a – Prelude, La Création du monde, mm. 1-25, continued



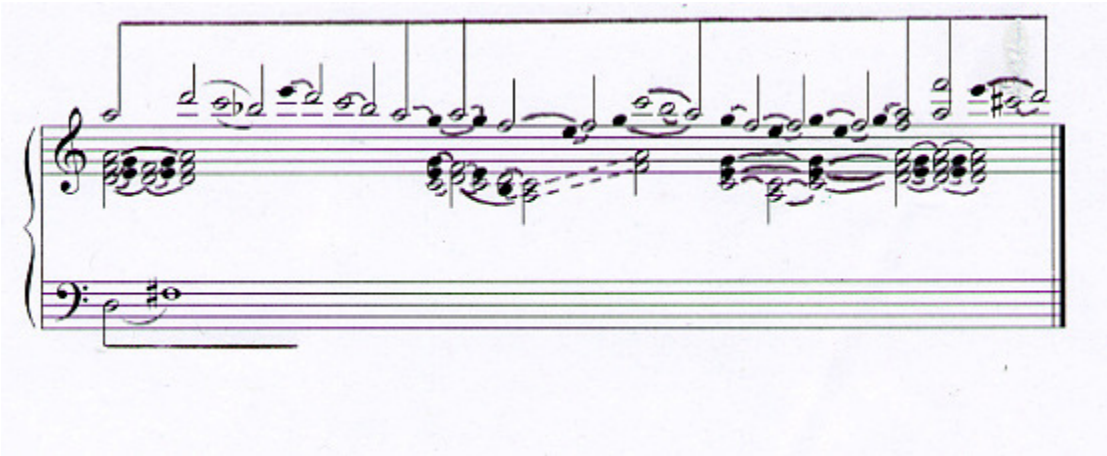
section. The saxophone's melodic stream is highly ambiguous as it constantly shifts tonics between D and F during this excerpt. Measures 1-11 are in D minor, while measures 12-20 are in F major. For the last five measures of this excerpt, the saxophone's alterations become more frequent, with measures 12-23 in d minor, 23-24 in F major, and 24-25 in d minor. The accompanimental streams are found in the bass and

ostinati. Primarily in the key of D major, the bass stream is tripled by the piano, the string bass, and the timpani. The melodic ostinati are found in remaining voices, in the piano and strings. This consists of a pedal point and undulating thirds that move, alternating between D and F, in step-wise motion.

Each stream manifests axial elements, although not in discrete sonorities, as explained in Straus' definition of an axis. In the first half of Example 4.4, axial elements are established on the foreground level through the half-step relationship between F and F#. In measures 1-11, the bass line only uses the pitches D and F#. The ratio of D to F# in this line is 2:1 (i.e. the notes on D are twice a long/as frequent as their F# counterparts). D functions as the tonic of the D scale and foundation of the primary axis on D-F-A-C. However, the F# links the two axes. It functions as scale degree 3 in D major, while simultaneously representing the foundation of the secondary axis F#-A#-C#-E#. The ostinato line also expresses multiple axial elements. It begins with a D minor triad, which contains three members of the primary axis, and the seventh of the secondary axis (F/E#). In measures 7-11, the accompaniment shifts from the primary axis to the secondary one and back. The scalar motion of measures 7-9 is in F major, which supports the secondary axis on the pitches F and Bb (A#). Finally, the melodic stream in the saxophone also displays axial elements. The melody opens with the typical 5-1 leap, which uses the two primary axial pitches of A and D. In measure 4, the axis shifts to Bb (A#), which functions as a common tone modulation in the melody. While the end of the first phrase of the melody prolongs the pitch A, it shifts the focus from D to F, providing axial mixture in measures 9-10. This statement of the pitch A reinforces the primary axis, but no longer sounds like the dominant of D major. Therefore, the original

scale step associations have been shifted to F major, so one now interprets the A as scale degree 3. However, the A sounds like neither the dominant nor the mediant, and the third accompaniment stream reinforces this limbo by shifting from F major material back to D minor material.

Example 4.4b – Axial/polytonal graph for Prelude, La Création du monde, mm. 1-25



The second half of example begins to shift to additional key areas. While the streaming remains intact, an axial shift occurs in the saxophone melody. The second phrase, Example 4.4a/b (measures 12-22), contains elements of both D and F, but also adds elements of C major. The saxophone line suggests a C major reading. This melody emphasizes the dominant on G in the first half of the phrase and shifts to F major through the common tone on C in measure 15. The phrase continues by outlining an F major descending scale that comes to rest on scale degree 2. It then returns to C major for

measures 19-20, again connecting with a common tone, G. The ostinato stream moves in parallel thirds that begin on a C major triad, and continue to suggest C major throughout the phrase. Measures 19-20 again reinforce C major by stating the complete C major triad. Finally, the bass stream remains in its function as a pedal point on the pitches D and F#, which comprise the two axial roots, while suggesting the key of D major. Measures 21-22 provide transitory material back to the previous pairing of D and F major triads. Measure 22 contains a D minor triad in the two accompaniment streams, and the root and third of F major in the saxophone and trumpets. Measures 23-25 are an extension of phrase two. These measures resolve the melodic stream in both keys by outlining the pitches C-F-E-C#-D in the saxophone line. The scale degree progression in this melodic extension is 5-1-7-7-1, with the first three pitches in F major and the final two pitches in D major/minor. Measure 25 provides the first leading tone for the D scale, which uses the C# from the secondary axis. The remaining accompaniment streams employ D major in the bass and D minor in the middle voices. Again, this conflict occurs in the bass line, which outlines the root tones of each axis, D-F-A-C and F#-A#-C#-E# respectively.

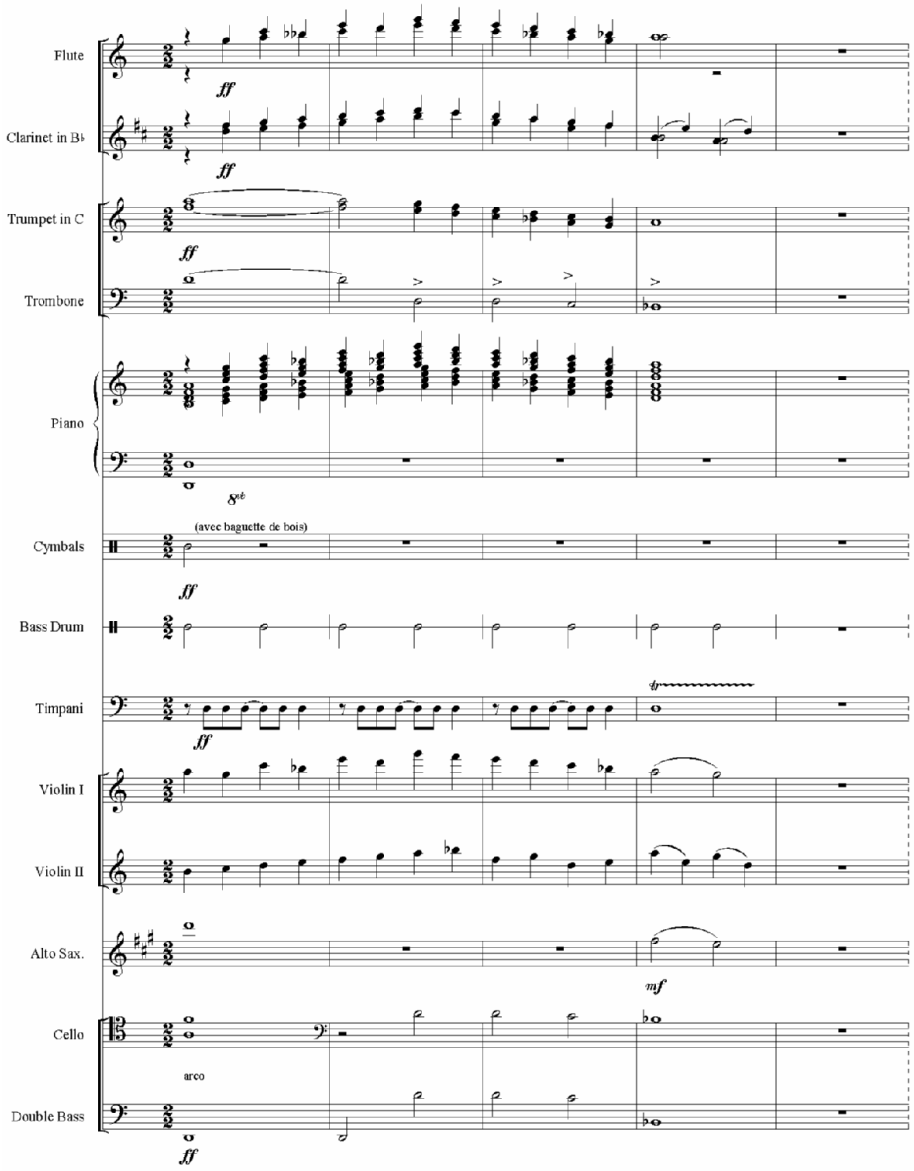
Consequently, Milhaud's opening twenty-five measures serve several purposes. On the background level, they establish the entire primary axis of D-F-A-C in addition to three quarters of the second axis on F#-A#-C#-E#. As the D axis is stated in its entirety, it will function as the primary axis throughout the work. In contrast, the secondary axis is stated in its entirety on the surface level only, as tonal support for D minor/major. In addition, Milhaud used the F# of the secondary axis to provide conflict on the surface level between the two opening keys of the work, D and F. The F# works in two ways:

first it serves as the mediant of D major and second, it provides a semitone conflict against F. This example illustrates how Milhaud used horizontal, linear means even from the beginning of *La Création du monde* in order to establish the importance of the polytonal texture as one important facet of composition throughout the work.

While Milhaud asserted that he wrote in strictly contrapuntal textures, his work does illustrate examples of polychordal anchors as described by Koechlin. In Milhaud's works, the sections that focus on harmonic content may be written either in traditional polychordal textures or appear as a thickening of a contrapuntal texture. Example 4.5a illustrates the first vertical stake in *La Création du monde*. Measures 47 to 50 smooth out an axial shift in the bass line, link sections of the Prelude, and function as the climax point of the Prelude.

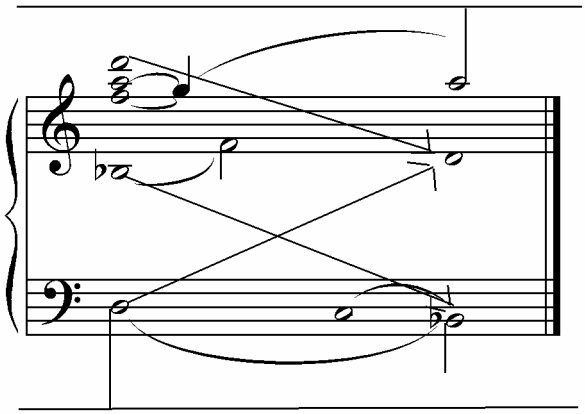
This example contains three streams that fuse into a vertical stake at measure 49. The three streams are divided into a single accompaniment line and two melodic lines. The accompanimental stream consists of bass line in the trombone and lower strings. The lower melodic stream is in the piano part. This melodic stream is significant because, for the first time, the piano is not doubling another instrument's line. The upper melodic stream is located in the trumpet and woodwinds. The three streams emphasize the primary axis through the pitches D-F-A, and the secondary axis through the pitch Bb (A#). This creates a new surface level major seventh chord, with Bb (A#) as the root. This excerpt functions like a polytonal omnibus progression that prolongs a single polychord, but grounds it with a vertical stake at the closure of the progression. In other words, each stream works through planing in a specific key, but at the end of the

Example 4.5a - Prelude, La Création du monde, mm. 47-50



progression, one of the pitches is chromatically altered so that it functions as a vertical stake. The first melodic stream begins with a D minor triad, which functions as a minor dominant in G minor. The first melodic stream in the clarinet and brass rises and falls stepwise, thus prolonging G minor.

Example 4.5b – Reduction of Prelude, mm. 47-50



The triads used for the majority of Example 4.5a and the reduction in Example 4.5b relate to G minor (i-ii°-III-ii-iv), so the entire phrase serves as a prolongation of G minor until measure 50. The second melodic stream, located in the piano part, begins with a Bb major triad, as IV in F major. The triads function in F until the downbeat of measure 50, where the progression ends on D minor. This component of the polychordal texture adds surface level ambiguity as to the nature of D and F, but is consistent with the expression of the primary axis. The accompaniment stream, in the lowest voices, is much simpler,

featuring a shift from D down to Bb. Although this example is expressed as continually shifting polychords, the overall progression is a voice exchange that shifts the Bb of the secondary axis from the middle stream to the lowest one. As a result, the vertical stake is found in two triads at measure 50. The pitches of the polychord are Bb-D-F-A, which combine a major triad on Bb and a minor triad on D. This polychord fulfills the requirements of the first type of vertical stake described by Koechlin. In addition, the sum of this polychord has the same quality as the secondary axis: both Bb-D-F-A and F#-A#-C#-E# are major seventh chords. While the polychord at measure 50 does not represent the secondary axis as a discrete harmony, it certainly contains a relationship through its chord quality. This illustration of the vertical stake functions as a link between sections and not between movements. Its placement within *La Création du monde* and its composition establish the vertical stake as a procedure that will be used throughout the ballet.

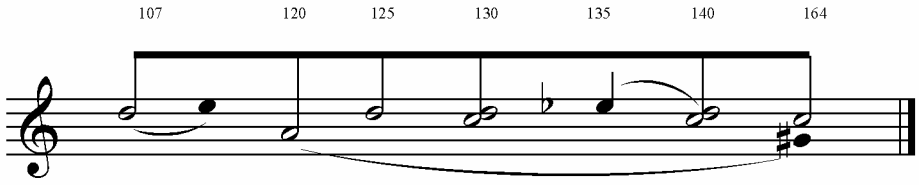
MOVEMENT I - FUGUE

The opening of the fugue is one of the few sections that scholars, such as Barbara Kelly, discuss, as Milhaud has altered the order of the keys for the fugal entries.[207] It is unique in that the exposition of the Fugue is one of the few sections that may be considered to be in the single key of D minor. The listener expects the answer in the

[207]Barbara Kelly, *Tradition and Style in the Works of Darius Milhaud* (Burlington, VT: Ashgate, 2003): 171-174.

fugue to appear on A, but instead, the second fugal entrance is on E. The overall structure of fugal entries on D-E-A-D places the focus on the root of the primary axis, D.

Example 4.6 – Axial Relationships in the Fugue, mm. 107-165



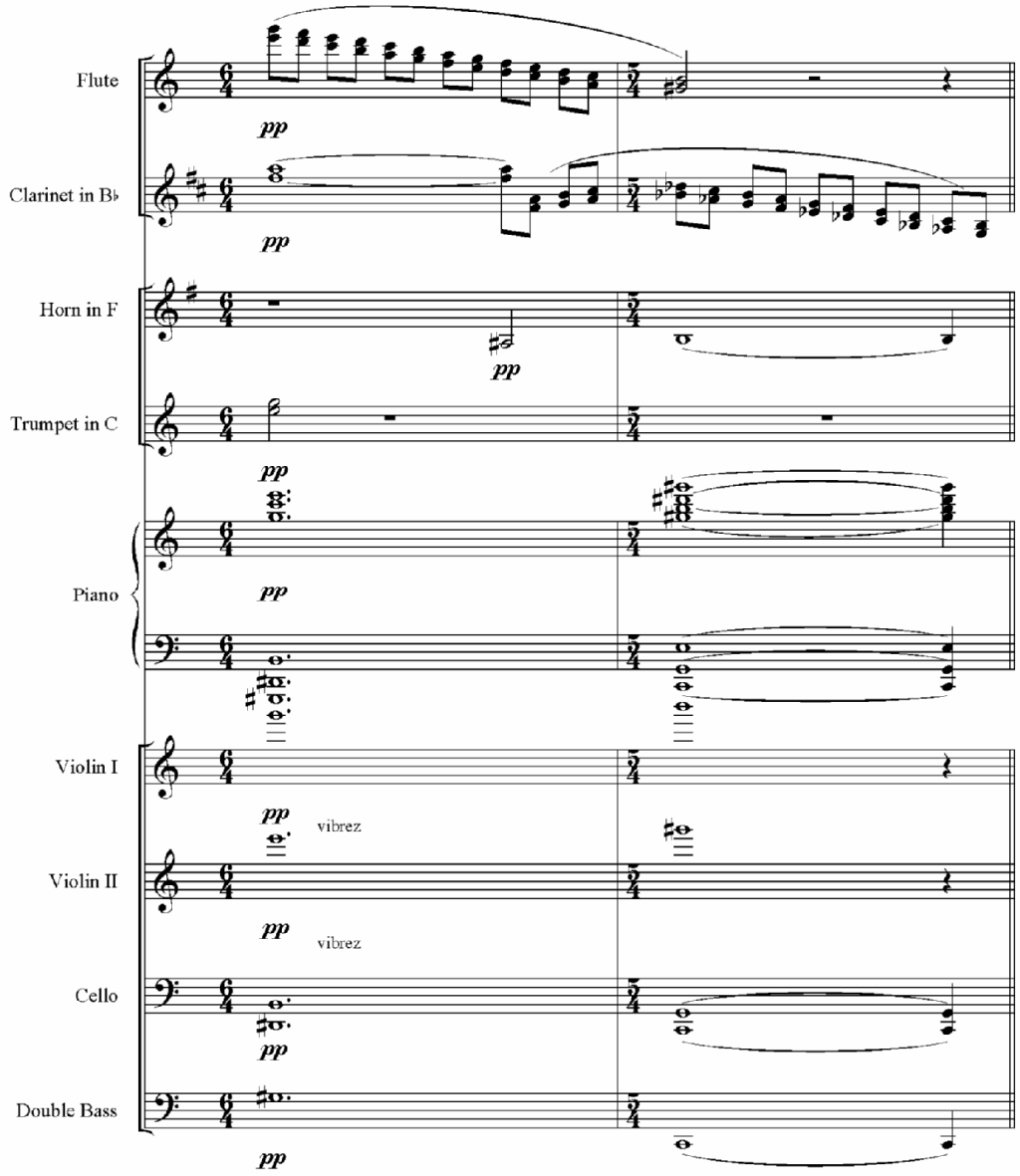
Once the exposition is complete, the episodes and remaining fugal entries utilize polytonal textures. The bitonal relationship of C and D is central to the key organization, as illustrated in Example 4.6. Although this is one of the more streamlined movements with respect to harmonic movement, there is a shift from the root to the seventh of the primary axis. The non-axial key areas of E, Eb and G# decorate the primary axis and drive the harmony forward to the next movement.

Examples 4.7a and 4.7b (measures 164-165) illustrate the vertical stake, which provides harmonic support for the structure. This example binds the end of the Fugue (Movement I) to the beginning of the Movement II with a single polychord prolonged through a voice exchange. The notes in the bass register make up a G# minor triad, while the pitches in the treble create a C major triad, as illustrated in measure 164. Although the flute and clarinet lines serve to blur the outlines of the polychord, their resting points

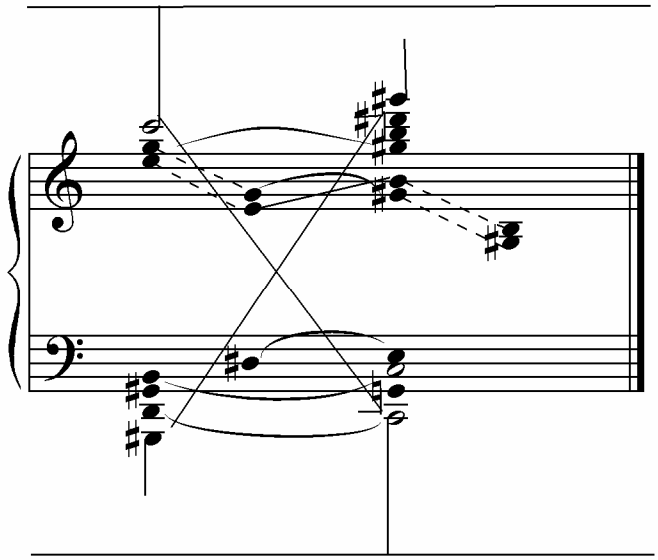
also contain chord tones. In beat three of measure 164, the horn and flute parts link the voice exchange primarily though half-step relationships. The horn's line ascends a half step from D# to E, or from the fifth of the G# triad, to the third of the C triad. The Bb clarinet moves from E and G of the C triad to G# and B of the G# triad. This polychord, comprised of two perfect triads, supports Koechlin's first classification of the vertical stake. The stake links the previous key pair of C and D major (mm. 140-163) in Movement I to the concurrent keys of Ab, Bb, and C at the opening of Movement II (mm. 166-178).

In Example 4.7b, the polychords facilitate an axial shift away from the primary axis, while retaining the single primary axial element of C. The pitches in the bass, which comprise a G# minor chord, are exchanged with the C major pitches held in the treble register. As a result, the notes in the bass register move from G# to C, while the treble moves from C to G#. This example of the vertical stake facilitates the progression of concurrent keys from the primary axis (C and D) to a set of keys that integrate elements of the primary and secondary axes and foreign keys (with Ab as a foreign key, Bb from the secondary axis, and C from the primary axis). In addition, using two triads in an enharmonic double chromatic mediant relationship (C major and G# minor) to create a single polychord that reiterates the background axial construction ensures that the vertical stake cannot be reduced to a single extended tertian chord.

Example 4.7a – Movement I, Fugue, mm. 164-165



Example 4.7b – Reduction of mm. 164-165



MOVEMENT II

The overall axial progression of Movement II begins with a cluster of keys related by whole step. By the end of the movement, the keys have and moved to the root and fifth of the primary axis (Example 4.8). This stack of keys in the beginning of Movement II includes Ab, Bb, and C, with two out of the three keys belonging to one of the axes. This key grouping expresses conflict by major second between the C of the primary axis and the Bb (A#) of the secondary axis, with the key of Ab providing textural variety. (In addition, the Ab materials at the beginning of Movement II are a continuation of the

closing materials in G# in the Fugue - Movement I.) The key areas of Movement II alternate between clusters related by major second and those related by fourths and fifths, as illustrated in Example 4.8. The first key cluster on Ab, Bb and C is transposed to the keys of C, D, and E in the first half of the movement. This cluster reappears in an altered state as the penultimate set of keys on D and Eb. While Movement II does prolong the key of F during the middle of the movement, the main shift occurs from the seventh of the primary axis (C) to the root and fifth of the primary axis (D and A).

Example 4.8 – Axial Progression of Movement II, mm. 166-257

As in previous foreground examples, measures 203-226 are based on a cantilena structure that separates the melodic and accompaniment streams. This is illustrated in Examples 4.9a-b**.** Like much of the organization of *La Création du monde*, this excerpt reflects a symmetrical organization of polytonal textures. Example 4.9a illustrates that both the key density and the thematic material shift in the middle section of the excerpt. While the A sections are in F and C, the B section's third key of Bb adds an additional fifth relationship to the original key pairing. In addition, the accompanimental streams

Example 4.9a – Phrasing/Keys for Movement II, mm. 203-226[208]

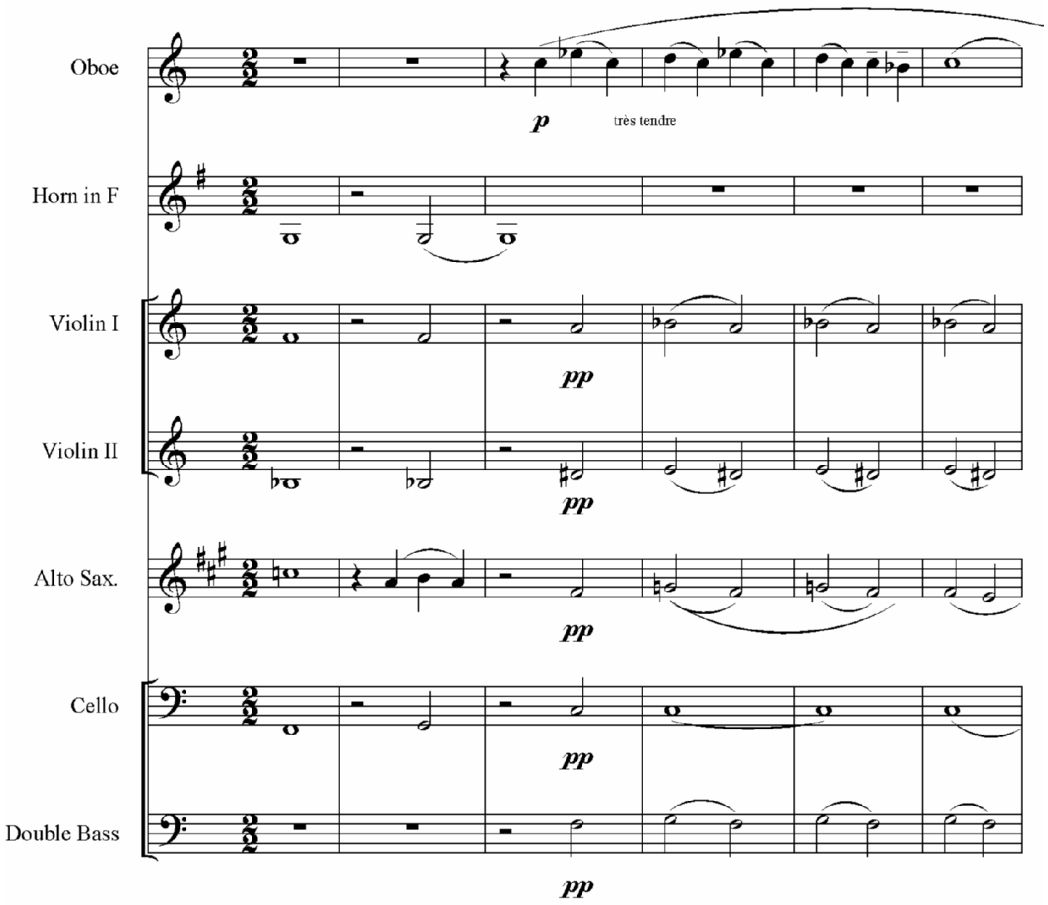
Keys	*Phrase*	*Phrase Length*	*Measures*
F/C	*A*	*4*	*203-206*
F/C	*A*	*4*	*207-210*
Bb/F/C	*B*	*6+2*	*211-218*
F/C	*A'*	*4*	*219-222*
F/C	*A'*	*4*	*223-226*

are created in such a way that they serve a dual function, thus ensuring their irreducibility. The melodic material opens with the "Plants and Animals" theme in C minor, moves to F major (in the B section), and then returns to C minor. The accompaniment streams are not so easily distinguished. The upper three parts of the accompaniment consist of the violins and saxophone, which move by half step. The cello primarily uses pedal points, while the bass alternates in whole steps. The overall section contains a balance between primary and secondary elements, and is symmetrical in nature, with the keys F and C comprising the A section and Bb, F, and C comprising the B section. The choice of F major for the A sections provides a link to the secondary axis. Each grouping of keys may be reinterpreted with respect to axial strength. The combination of F and C can represent a fusion between the two axes, with F representing

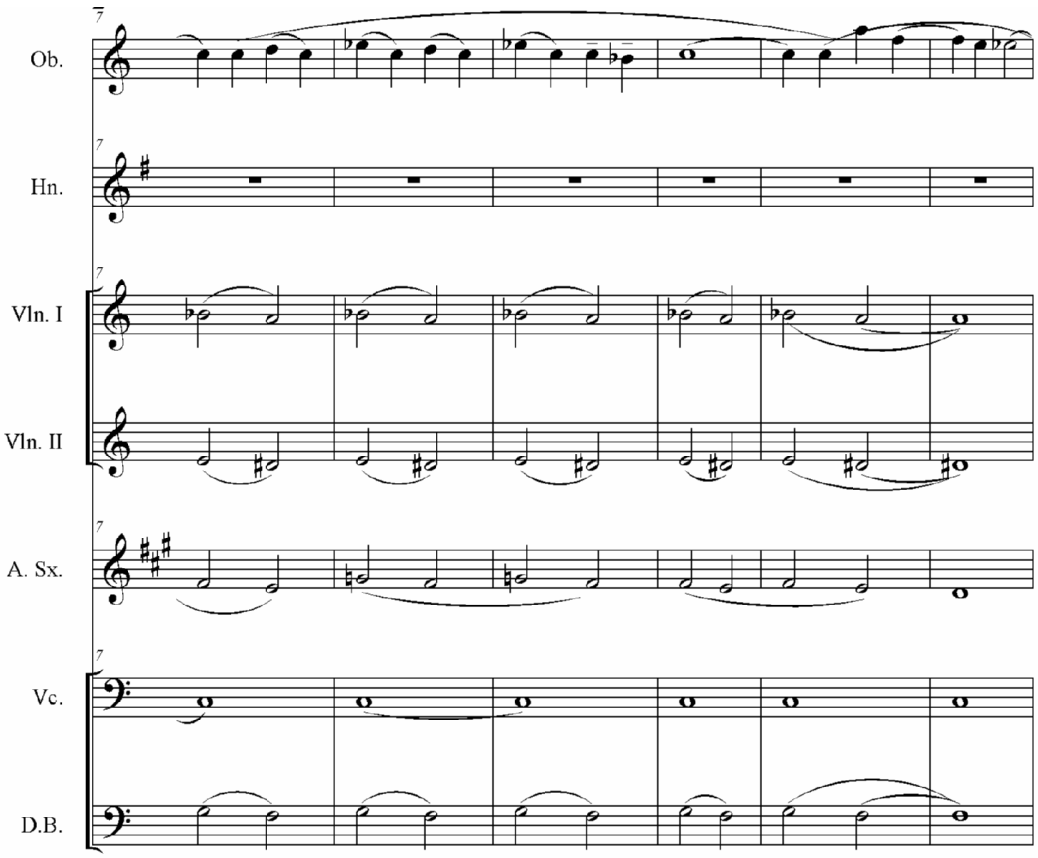
[208] The phrases in Example 4.13 and following discussion are labeled with uppercase letters for ease of reading.

the common tone between axes. Alternatively, the key of F may remain as a link to the key of Bb, which is also a member of the secondary axis.

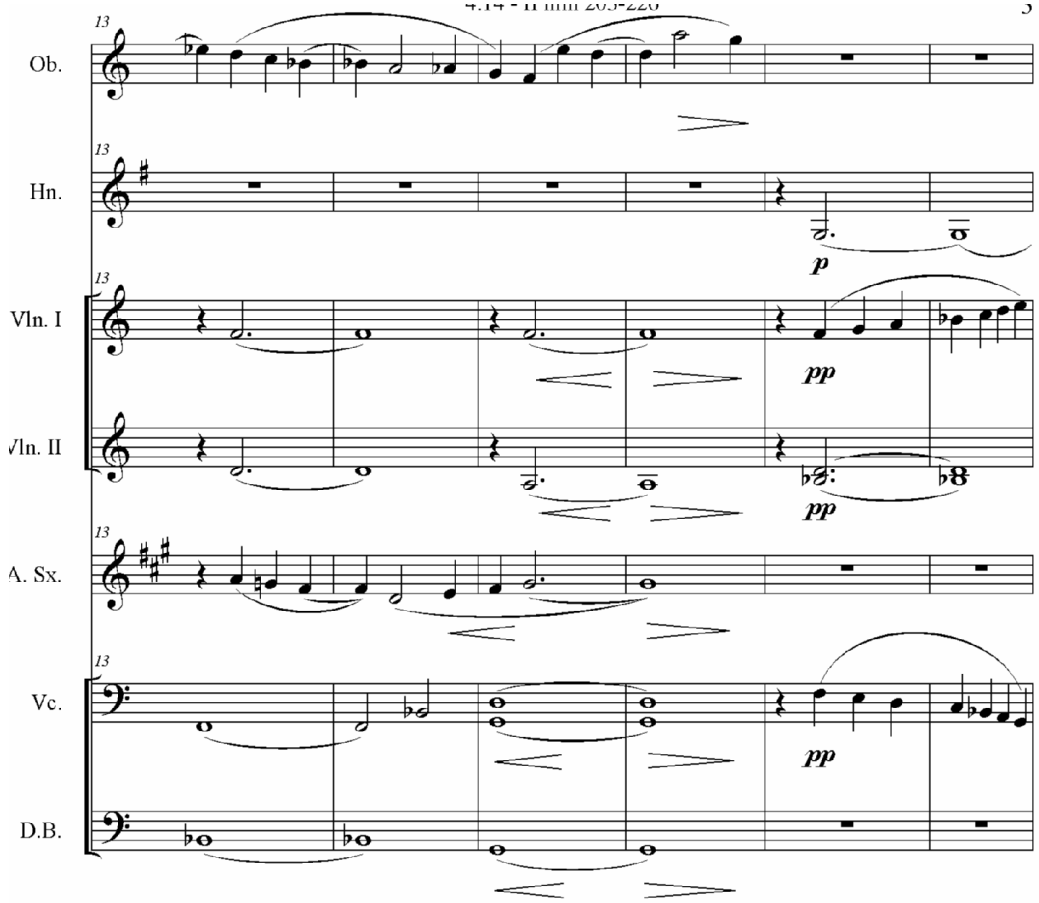
Example 4.9b – Movement II, mm. 203-226



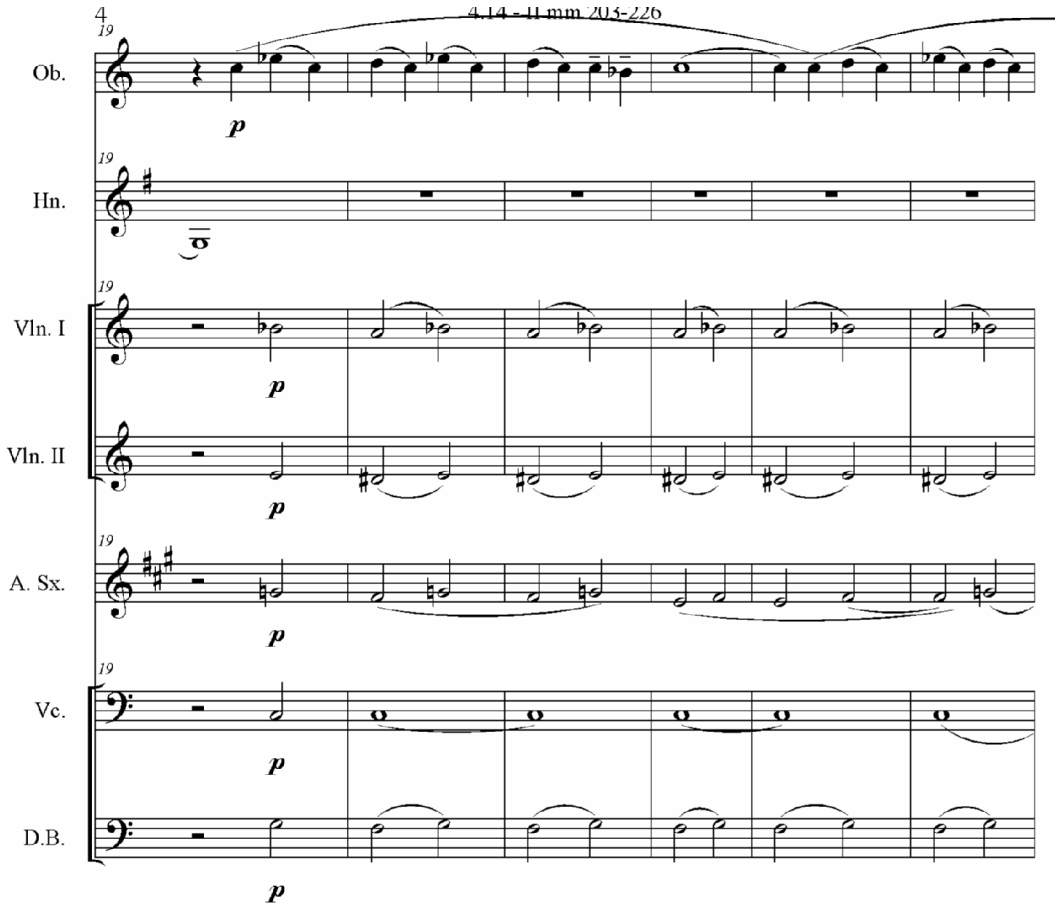
Example 4.9b – Movement II, mm. 203-226, continued



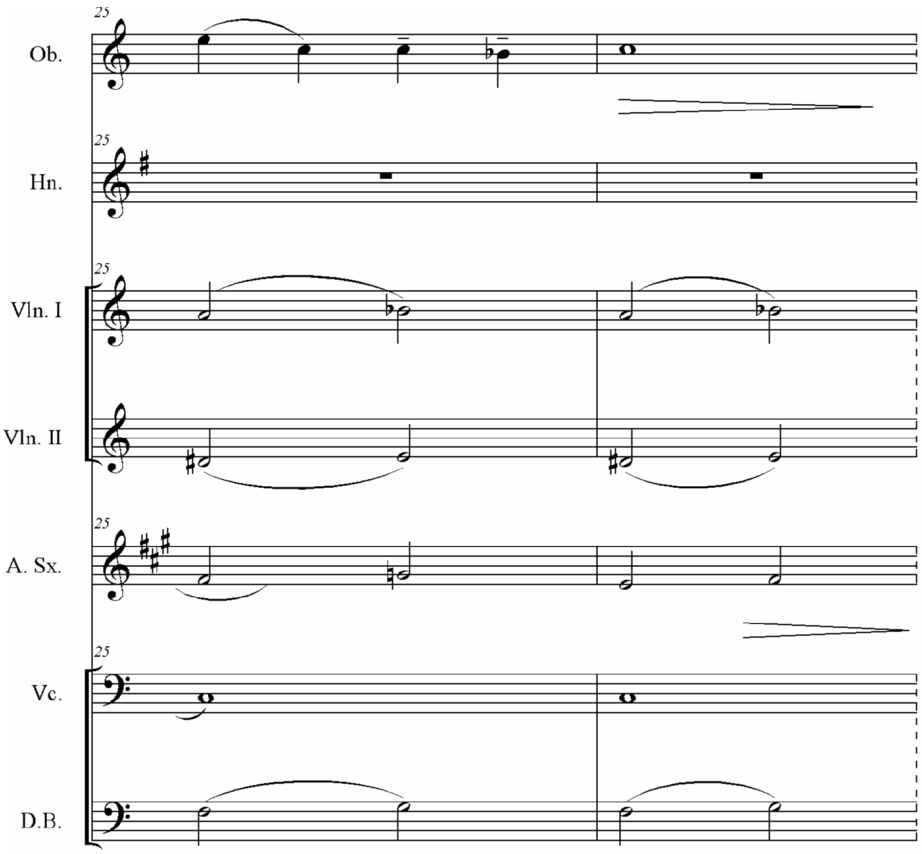
Example 4.9b – Movement II, mm. 203-226, continued



Example 4.9b – Movement II, mm. 203-226, continued



Example 4.9b – Movement II, mm. 203-226, continued



In the A section (measures 203-210), shown in Example 4.9b, the pitches in the accompaniment alternate between two groups. The chord in measure 202 comprises F-A-C-Eb(D#). Again, three members of this chord belong to the primary axis. In measure 203, the F in the bass moves to G, the C in the cello remains, the A in the saxophone moves to Bb, the D# in the second violin moves to E, and the A in the first violin resolves

to Bb. This creates a second chord of C-E-G-Bb. The root of this chord belongs to the primary axis, while the chord seventh, Bb, belongs to the secondary axis. Each of these two major minor seventh chords serves to reinforce the other, while obscuring their tonal identity. As both chords have minor sevenths attached, they possess dual function capacity. As a result, the C7 materials in the accompaniment support the melody in C minor in the A sections of this excerpt, while the F7 chord supports the melody in F in the B section of this excerpt. Concurrently, however, the C7 chord functions as the dominant of F, while the F7 chord serves as the dominant of Bb.

The texture becomes more complex in measures 217-219. This phrase extension provides a shift, to return to the original texture. These two measures consist of four streams, with two melodic and two harmonic aspects. The melody is in F major, which is voiced in concurrent ascending and descending F major scales in the first violin and the cello parts. The harmony is represented by the horn part, which enters on a C pedal point, representing C, while the second violins represent the root and third of Bb major. Therefore, there are aspects of F, C, and Bb in this short section. Although one could relegate this all to F major, with C as the dominant pedal and Bb as the subdominant, it would not fit with the use of the C minor melody in the A sections of this excerpt.

The string section in Example 4.9b thus interlocks two concurrent harmonic streams. The lines in F major utilize a I-V^4_3-I progression,[209] while the C major lines create a ct°7-I^6_4-ct°7 progression, thus combining concurrent tonic and dominant areas on every beat. The "Plants and Animals" theme features relaxed motion in quarter notes and

[209] When I refer to the string section I am referring to the strings and the saxophone in Example 4.14. The saxophone is substituted for the viola throughout.

focuses on the subtonic being pulled down to the dominant scale degree. As in previous examples, the melody and the harmony are pulled together by the accompaniment in a way that includes both key areas. The doublings of the accompaniment express the need to create equity between the keys of F and C major. For example, although the concurrent ct°7 and I at measure 203 comprise the pitches D#-A-C, the doubling reinforces neither tonic of C or F, as the pitch A is doubled in the first violin and saxophone. The doubling of the first violin and saxophone in this texture allows an unorthodox doubling of chords by utilizing the common tones of these closely-related keys. The pitch A is the fifth of the ct°7 and the third of the I chord on F. This continues with the concurrent V^4_3/F and I/C, with the Bb doubled. The Bb is the seventh of the dominant chord which resolves, as it should, down to A. As the Bb is not a member of the C major triad, it belongs to the blues scale with the subtonic, as emphasized in the oboe melody. The first doubling of A is restored as the texture returns to the original chords in the second half of measure 204. This chordal texture becomes more enmeshed at the end of the first section, as observed in measures 213-218. This section is a reminder that a successful polytonal fabric is usually created by linear means. The cross-relation between F and F# is avoided by using a complete F chord and an incomplete ct°7 chord. Therefore, chords may be inferred if the melodic tendencies are first taken into account. Example 4.9b (mm. 213-214) illustrates the tritonal texture: the keys of F and C major with a Bb major triad are voiced in all of the strings while a C blues scale in the saxophone provides a timbral differentiation for additional emphasis. Measures 215-216 become denser, with chord members of F major on F and A in the violins and the C scale in the saxophone. At the same time, with the addition of the saxophone part, open fifths

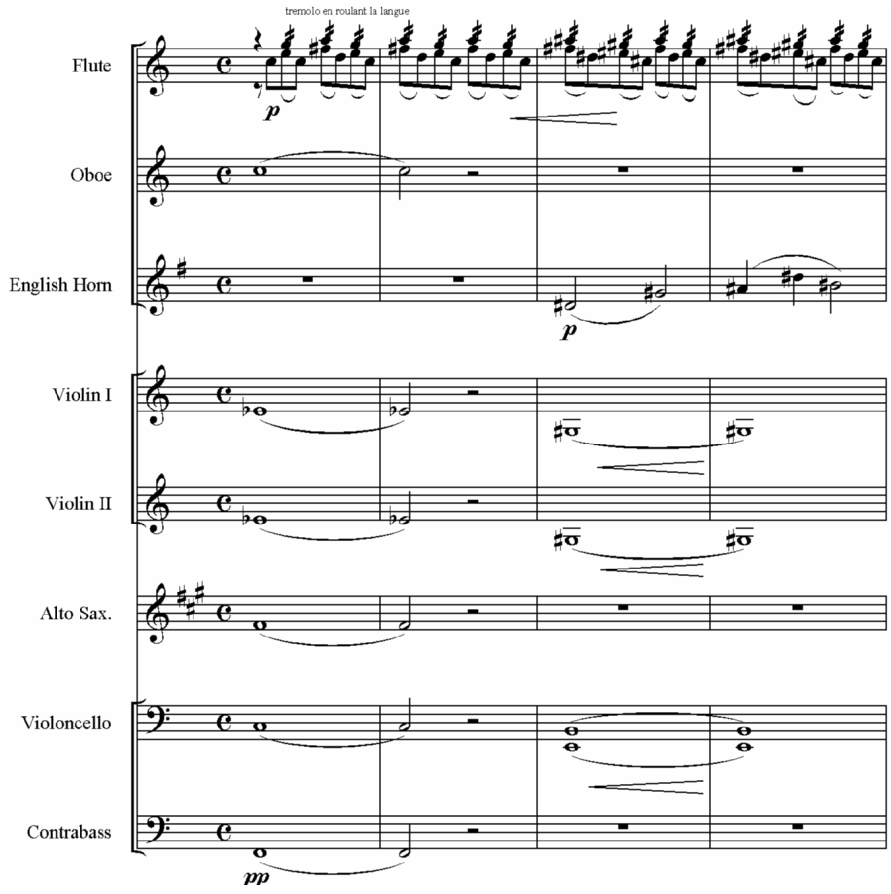
create a G major chord. The cadence is again elided: the second section of Example 4.9b illustrates a C3 tonic in the horn part, members of a Bb major triad in the violins, and two F major scales in concurrent contrary motion, while the texture finally produces a single triad of C major on the downbeat of measure 220. This C major triad functions in both C and F as the tonic in the former and the dominant in the latter, with the melody transposed to C major in the oboe at measure 220.

The second section of Example 4.9b (measures 217-231) continues in much the same manner, with the accompaniment in an identical chord progression through the first two phrases (which includes the melody) in measures 219-222 and 223-226 respectively. The entrance of the horn melody in F major at measure 227 alters the texture of the accompaniment. The melody, which uses the pitch of A, is a tonal transposition of the original melody. If this melody were in Bb, the A would be lowered to Ab as the subtonic. The progression is intensified by multiple key suggestions by the respelling of the ct^{o7} at measure 227, with Eb replacing the D#. The original progression is further obscured as the Eb does not resolve in the second half of the measure, thus continually suggesting a ct^{o7} concurrently with an incomplete V^4_3, with the addition of the Eb creating a C minor triad. The accompaniment becomes spare at measure 228, as the first violin drops out and half of the movement in half notes has been superceded by held tones. As in the earlier sections of measures 203-226, one element of each set of accompanimental tones is disjunct with the rest, which makes it necessary to omit the third of the chord in some cases.

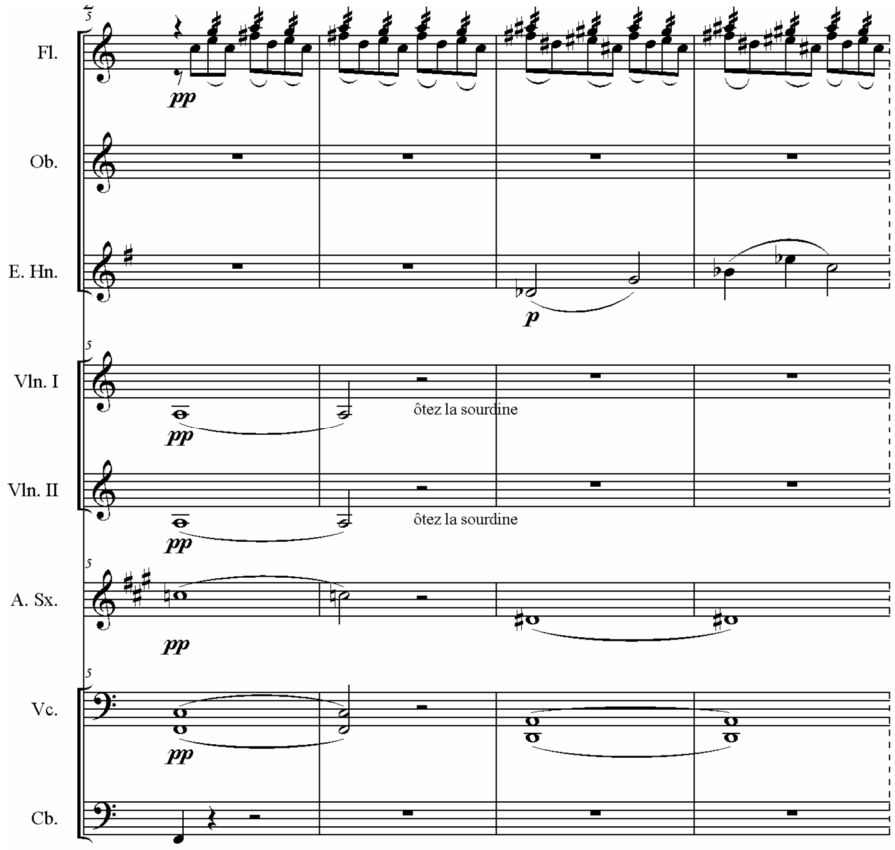
The section of *La Création du monde* that links Movement II to Movement III is yet another example of a vertical stake. Examples 4.10a-b (mm. 250-258) illustrate the

composition of this vertical stake. The two components of the polychords are split between the flutes on one hand, and the rest of the texture on the other hand, which is comprised of the horn and the string section. Measures 250-256 alternate between two polychords. The first polychord is comprised of an F major minor seventh chord, while the flutes primarily outline a C major triad. These two chords are closely related, yet still fit under Koechlin's second criteria, which is the combination of a major triad with a seventh chord. As *La Création du monde* progresses, the relationships within each vertical stake become more complex. The second polychord of the vertical stake is located in measures 252-253, with a C# major triad in the flutes and an E major triad in the accompaniment. While this triad combination only falls under Koechlin's first criteria (two perfect triads), the triads are in a chromatic mediant relationship, with E as the common tone. While the original F^7 chord returns in the accompaniment in measures 254-255, the flutes progress from C major to D major. The original polychord on F^7 and C returns briefly, and then the flutes push the progression forward by moving into D major. The combination of the D major triad and the F^7 chord also create a chromatic mediant relationship, with the common tone of A. The third polychord increases the rate of dissonance with a D# minor triad in the flutes and a D major triad in the accompaniment. While the two triads have a common tone of F#, the half-step clash between the roots and fifths of both triads increases the dissonance, which makes the beginning of Movement III on C# major and D# minor sound less dissonant. Finally, the shift from the primary to the secondary axis through the use of the vertical stake is successfully completed.

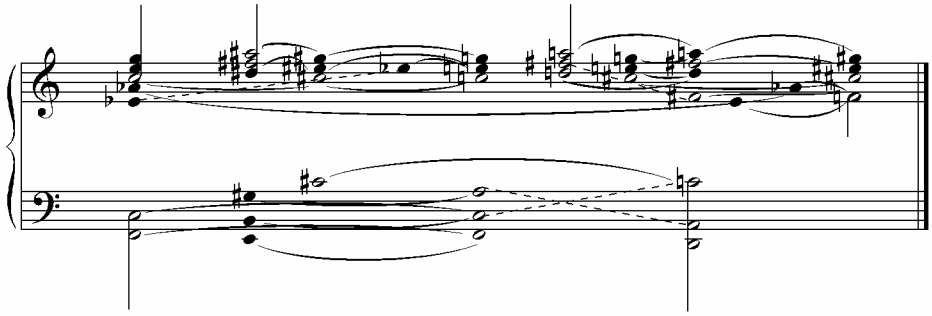
Example 4.10a – Movement II-III, mm. 250-258



Example 4.10a – Movement II-III, mm. 250-258, continued



Example 4.10b – Reduction of measures 250-258

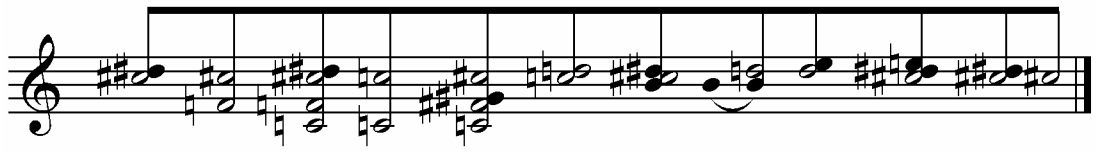


MOVEMENTS III AND IV

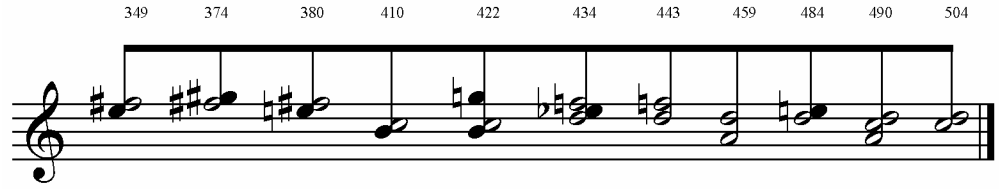
Movements III and IV depart from the primary axis, thus affecting a large-scale shift in polarity. The overall progression of Movement III is in C#, with the half step embellishments of C and D from the primary axis occurring in the middle of the movement. Movement III also utilizes key areas that are not members of the primary or the secondary axis. The secondary axis is prolonged through a shift from the C# of the previous movement to the F# materials in Movement IV. By moving from F# to C and D, this movement also serves as the transition back to the primary axis. Notably, Movement IV is embellished by non-axial key areas that persist until near the end of the movement; these embellishments comprise the majority of non-axial keys used in *La Création du monde*. The establishment of the secondary axis and the shift back to the primary axis is shown in Example 4.11a-b. The shift away from the primary axis to the secondary axis and back can be viewed as a new polytonal paradigm that expresses tonal elements. Traditionally, one would begin in the tonic, move to the dominant, and return to the home key area. In *La Création du monde,* the harmonic goals of departure and

return are achieved through an axial shift: the priority is first on the primary axis until Movement III, where the texture moves to the secondary axis. The return to the primary axis is then taken up in the second half of Movement IV. Consequently, one of the most interesting harmonic excerpts in the ballet includes the departure from the primary axis.

Example 4.11a – Axial Relationships in Movement III, mm. 258-348



Example 4.11b – Axial Relationships in Movement IV, mm. 349-509

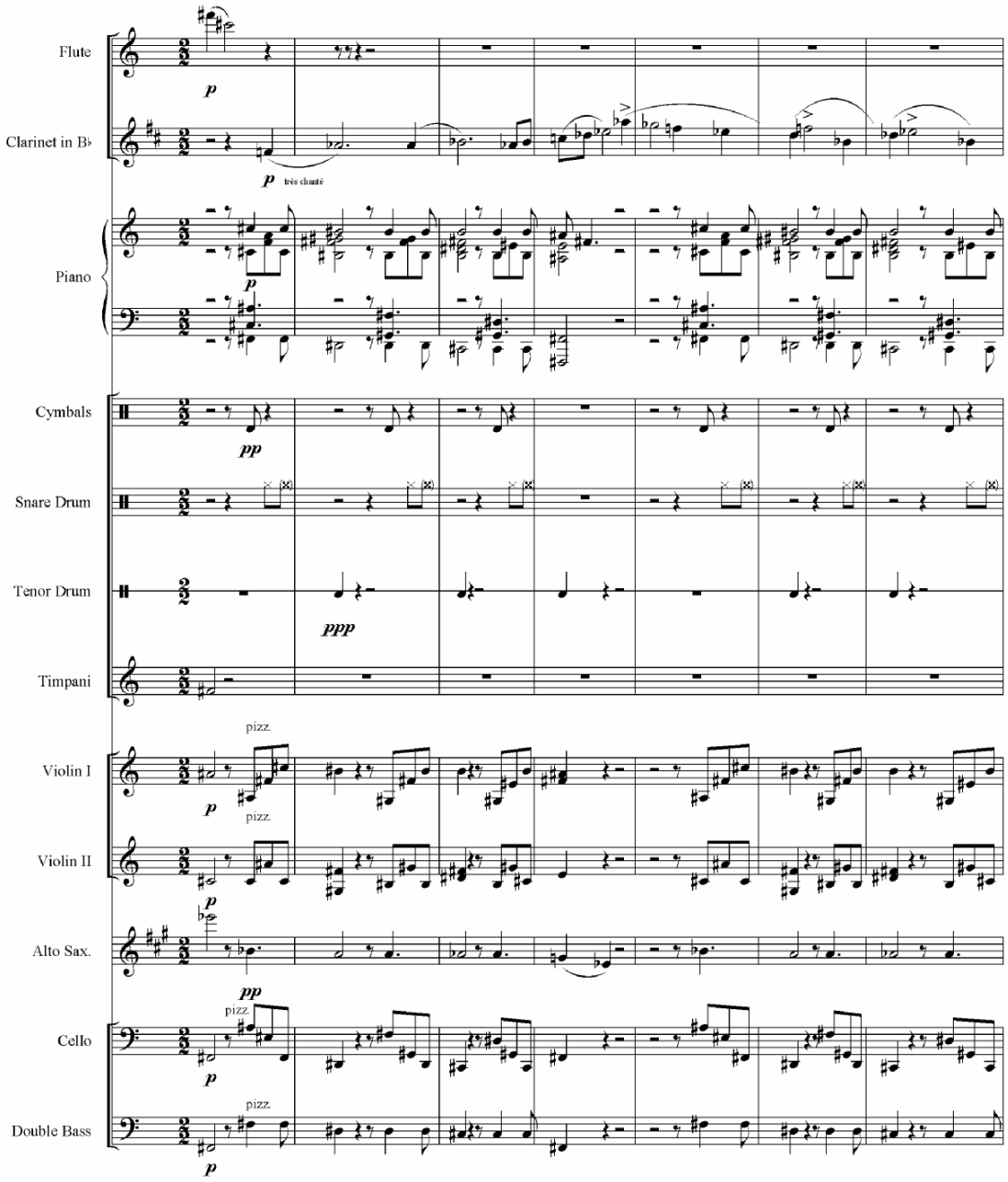


Movement IV (mm. 349-373) illustrates the greatest departure from the established primary axis in the ballet. Example 4.12 illustrates the emphasis on the secondary axis on the horizontal within *La Création du monde.* Movement IV features the secondary axis based on F#, omitting elements of the primary axis (key areas D-F-A-

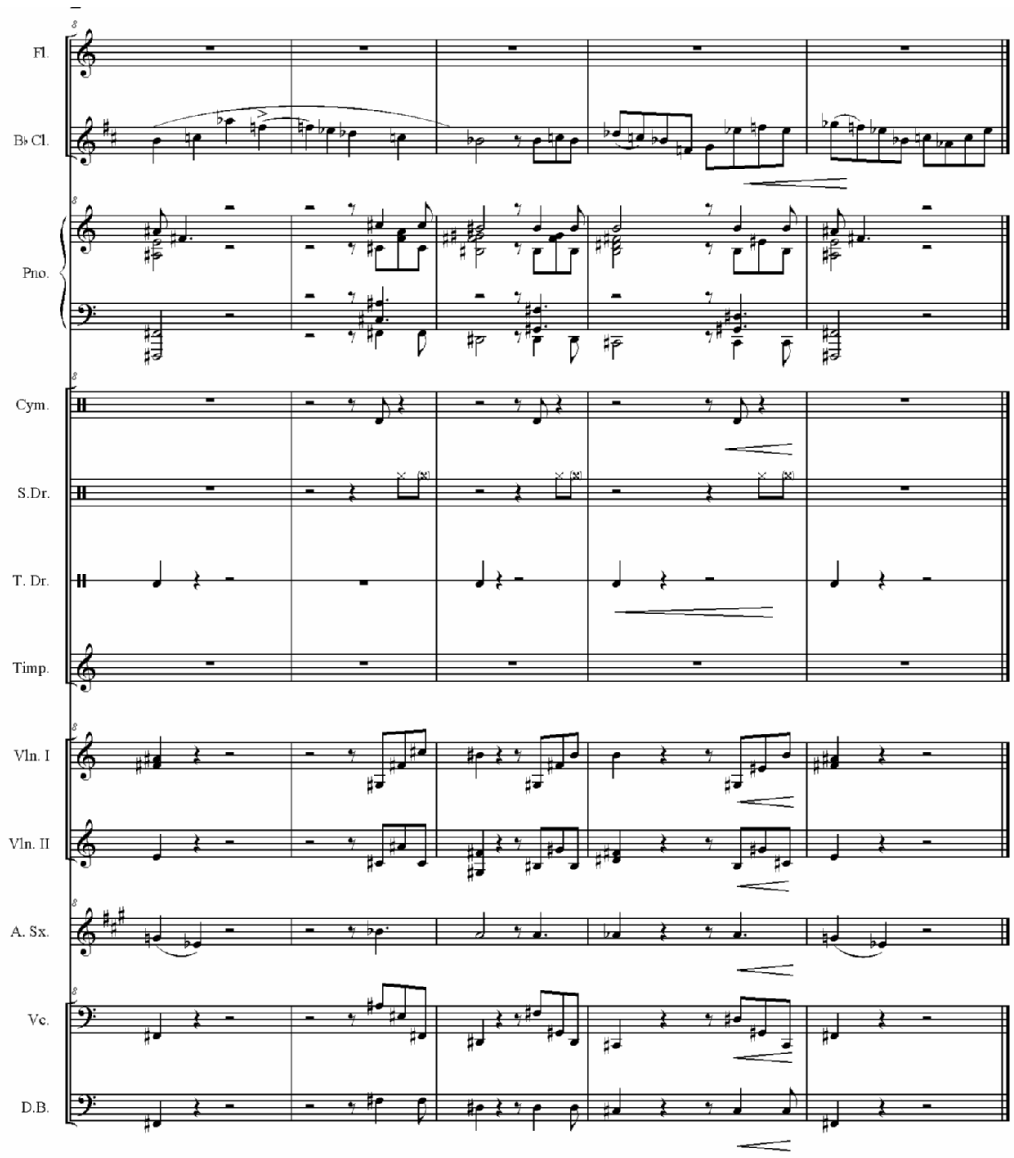
C). Consequently, this shift in polarity expands the vocabulary and role of the non-axial key relationships on the surface level. In Example 4.12, the key areas of E major and F# major balance the secondary axis on F# with the non-axial key of E. As a result, one focuses on differences in texture, rhythm, articulation, and functional harmonies that distinguish the two key areas.

First, the surface texture of Example 4.12 is split into three streams. While the texture has been clearly divided into three groups, it is the intersection of these groups that provides coherence in the bitonal fabric. The first group comprises the clarinet and the piano, the second unpitched percussion, and the third strings (with the obligatory saxophone in the alto voice). Upon closer examination, the three groups only comprise two key areas. In order to separate the key stream of E major versus that of F# major, the groups are also separated by rhythm. The clarinet part opens in a smooth, flowing style that proceeds continually in regular four-bar phrases. Although both the clarinet part and the accompaniment group move in regular, four-bar phrases, the accompaniment group begins each phrase on the second eighth note of the second beat in cut time, and leaves two and a quarter beats of rest between each statement. As the section progresses, the staggered beginning and ending of the phrases causes the two groups to become more disjunct. Third, timbre and articulation are used to separate one group from the other. While the clarinet line is to be played 'singingly,' the accompaniment group's motives, though slightly smoothed out by the doubling of the texture in the piano, are pizzicato and detached. Finally, by virtue of register, the clarinet distinguishes itself from the second group. Although the highest pitch in the second

Example 4.12 - Movement IV, mm. 349-360



Example 4.12 - Movement IV, mm. 349-360, continued



group is C#5, the tessitura of the clarinet line lies above the accompaniment, climaxing on B5. The addition of the percussion to the second group rounds out the textural differences that strengthen the bitonal fabric. Consequently, the conflict between E major and F# major is expressed through differences in texture between the solo line and accompaniment, separation by instrument family, use of distinct motives for each group, and phrases placed out-of-phase. After examining the texture, one assumes that the clarinet is firmly rooted in the key of E, while the remaining streams are placed in the key of F#. This creates a distant relationship by whole step.

One might surmise that, because of their axial association, the F# materials would predominate. The materials for both keys, however, are contrapuntally intertwined within Example 4.12. On one hand, the clarinet in E is driven by melodic motion, while on the other hand the group in F# is driven by harmonic motion. This separation creates a traditional cantilena style that features a treble melody with an accompaniment. Each phrase in F# is a self-contained harmonic progression on I—V^4_3/V-V7-I. In a strictly unitonal work, the harmonic motion of the second group could become static on its own. However, by differentiating between the phrase lengths of the clarinet and the other voices, each group functions in a type of tug-of-war with the other. Example 4.13 outlines the disjunction between the melody in the clarinet and the accompanimental voices.

However, placing one primary key in the melody and a second in the accompaniment does not suffice to connect the disparate elements of E major and F# major into a cohesive whole. As a result, the E major materials are woven into the

Example 4.13 – Phasing of Melody Versus Accompaniment in Movement IV, mm. 349-373

Melody mm.	*Melody Phrases*	*Accomp Phrases*	*Accomp mm.*
349-352	*4*	*4*	*349-352*
353-358	*6*	*4*	*353-356*
359-361	*3*	*4*	*357-360*
362-368	*7*	*4*	*361-364*
369-373	*5*	*5*	*365-369*
N/A	*N/A*	*4*	*370-373*

accompaniment group, which is expressed as follows. First, Milhaud created a concurrent cadence in E and F# by intertwining a V-I progression in E amongst the voices of the accompaniment section.[210] As shown in Example 4.12 (mm. 351-352) the second violin part is the focal point for the E major materials in the accompaniment for the last two measures of each phrase. At this point, two concurrent cadential progressions with V-I in E major and V7-I in F# major sound. As the overall accompaniment is in F# (which is the root of the secondary axis) the F# major materials still provide stronger movement than the E major ones. In the first half of measure 351, there is a complete B major triad in conjunction with an incomplete C#7 chord. The B

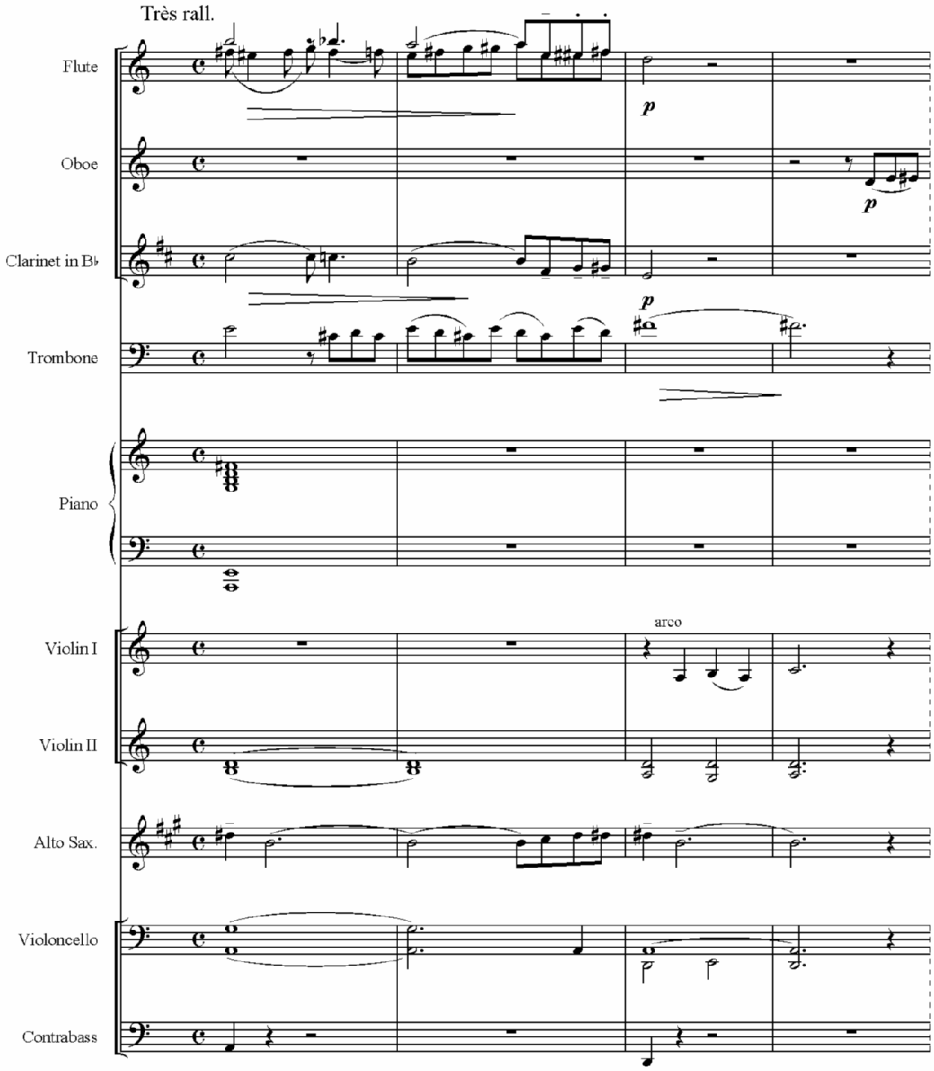
[210]All voicings discussed are doubled in the piano.

major triad is created with the Bs in the first violin and the saxophone, while the remainder of the triad is voiced in the second violin. The V7 chord on C# is voiced with the root of the chord in the cello and bass, and the chord seventh as the Bs of the first violin and saxophone. The pitch of B is the common tone between the two chords. In the second half of measure 351, the B major triad is now incomplete, while the C#7 becomes complete. The Bs are voiced in the saxophone for the full duration of two beats and reinforced by the Bs in the first and second violins. The third of the chord, D#, is voiced in the cello. Thus, the chords alternate between complete and incomplete versions on each beat until they hit their concurrent tonics, which are both incomplete. The tonic E is voiced in the second violin, while the root and third of the F# chord are in the first violin and the saxophone. The F# root is reinforced by the cello and bass. As a result, the clarinet melody always has a tonal connection to the accompaniment. This rhythmic disjunction of cadence points gives the melody an improvised feel, especially as it turns from the soaring line that establishes E major to a fragmented and embellished Fugue motive, which begins in the second half of the period at measure 358.

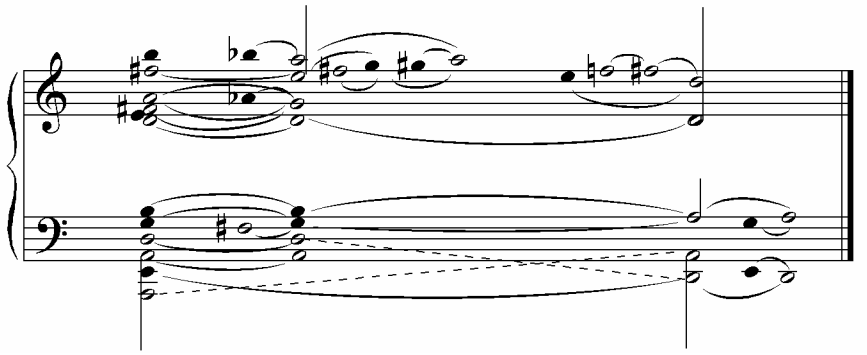
As in the other movements, the end of Movement IV is structurally tied to Movement V through the use of a vertical stake. Examples 4.14a and 4.14b illustrate the polychordal connection between the two movements. This section is in C and D major, both keys of the primary axis. In measures 507-508, the vertical stake is created with two seventh chords. The first chord is a major minor seventh chord on A (the dominant of D major). It is found in the bass, cello, the left hand of the piano part, the trombone and the clarinet. A major seventh cord on G, the second chord serves to link C and D major. These pitches are located in the saxophone, second violins, right hand of the piano part,

and the flutes. The F# of the G major seventh chord links the G chord of C major to the tonic of D major. The combination of these two chords into a single polychord falls into classification three of Koechlin's polychords, that of two alternate chords. The continuation of the stake at the beginning of Movement V (mm. 509-510) simplifies the texture to the first polychordal classification, that of two triads. This stake is comprised of the triads D minor and F major, which as a composite, create a major minor seventh chord on D. In order to retain some harmonic tension in this section of the vertical stake, a quintal chord is inserted between the two D^7 chords. The quintal chord, occurring in the second half of measure 509, is made of the pitches C-G-D-A-E. This polychord falls under the third classification of Koechlin's description: that of alternate chord combinations. The reduction of this texture is illustrated in Example 4.14b.

Example 4.14a – Movement IV-V, mm. 507-510



Example 4.14b – Reduction of Movement IV – V, mm. 507-510

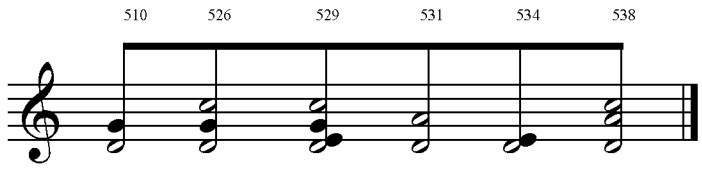


MOVEMENT V

The final movement of *La Création du monde* reestablishes the primary axis as the ruling group for the work. No members of the secondary axis are present on the background level. As a result, additional non-axial key areas are added to the texture in order to make it more harmonically dense before the final cadence. The non-axial keys of G and E serve to highlight the minor third relationship present at both the beginning of the work and its final collaspse downward. Interestingly, Movement V has the key area D present at all times, thus pitting other keys against it until the end of the work. D is paired with each axial element in turn—first with C and next with A. Again, these key pairings exploit the second/seventh relationship, indicated by the $^{6}_{5}$ chord. However, D is not paired with F for two reasons. First, the close relationship between D minor and F major instigated the axial conflict within the Prelude. Second, F serves as the common tone between the primary and secondary axes. If the F were to be voiced in the final movement, this would continue the axial polarity instead of resolving it. At the end of

the work, three tones of the primary axis are present; D, A, and C, thus confirming that the primary axis was the one built upon D. The axial resolution of *La Création du monde* is shown in Example 4.15.

Example 4.15 – Axial Relationships in Movement V, mm. 509-546

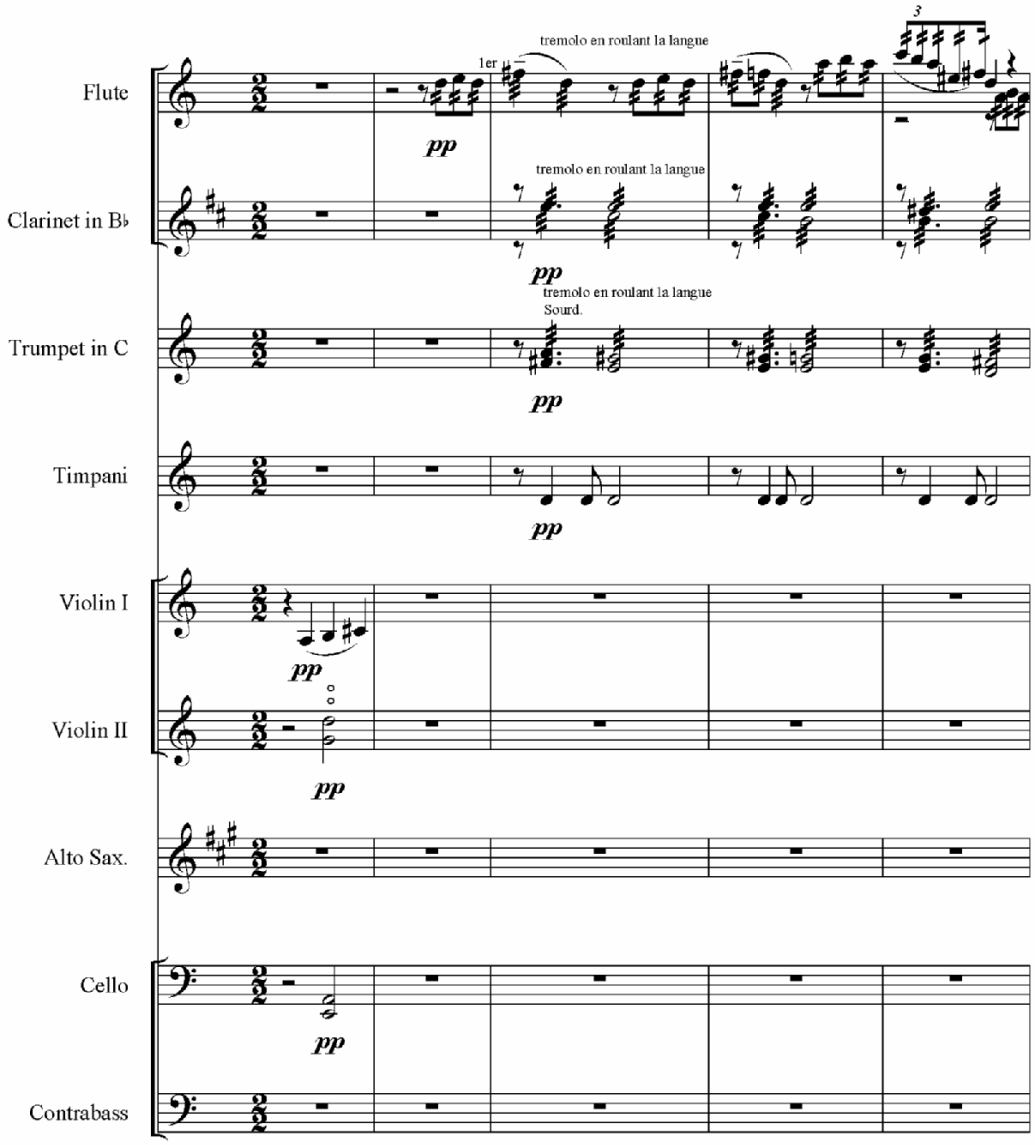


While the overall axial conflict of the ballet is established and resolved on the background level, Milhaud also resolved the opposing axes on the foreground level through the use of a vertical stake. Example 4.16a integrates the two axes of D-F-A-C and F#-A#-C#-E# through an extended interrupted cadential structure. The fusion of the primary and secondary axis into the final vertical stake is accomplished in three steps. First, the cadential progression is established. Second, the cadence is interrupted and other thematic material is resolved. Finally, the cadential progression resumes and is resolved. Example 4.16b provides a reduction for measures 537-546.

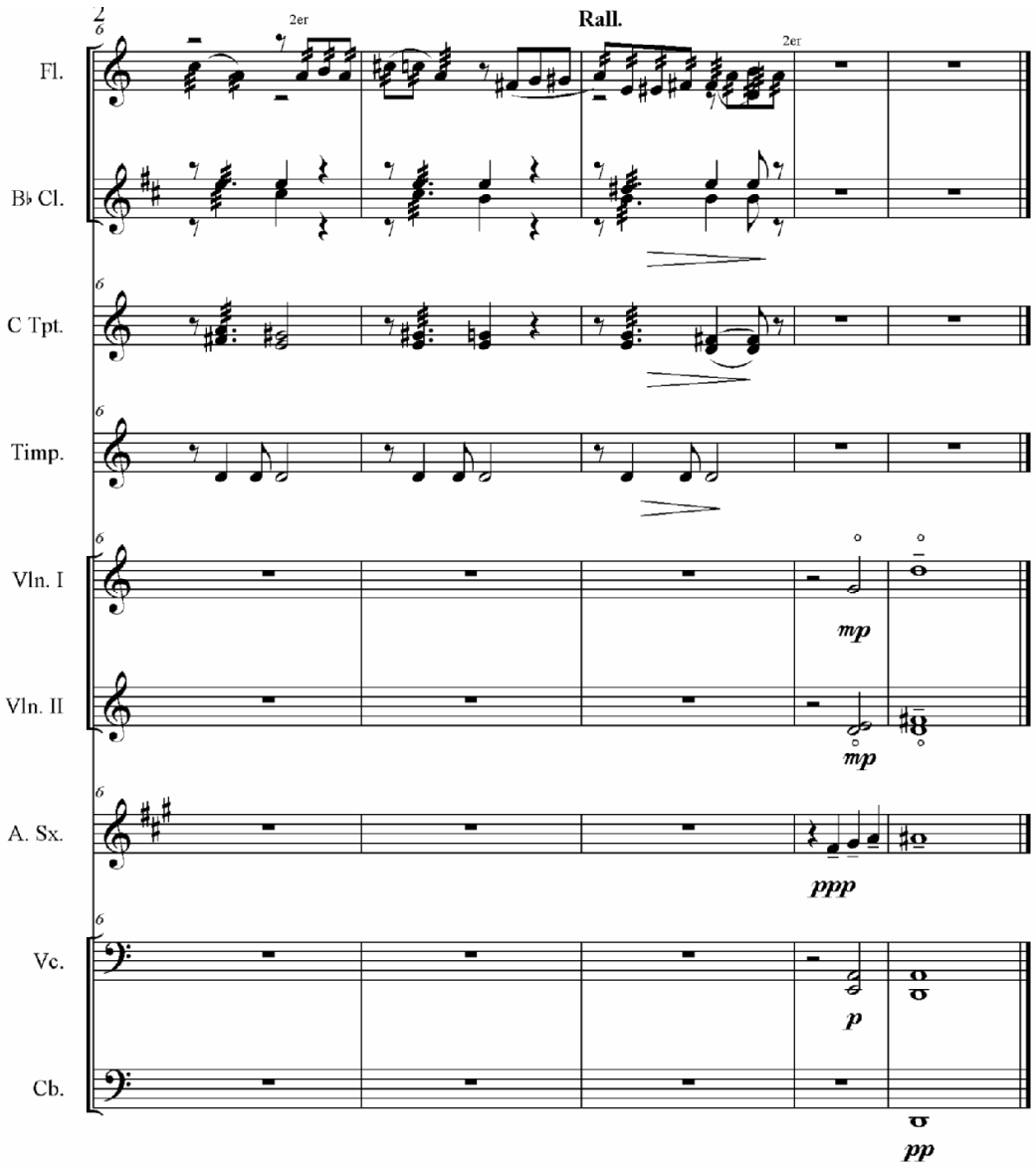
The cadential progression is established in measure 537 and is composed of three streams—one melodic stream and two accompanimental ones. This has been the prevailing texture throughout the ballet. The melody is placed in the first violins, while the second violins and the cello each voice an incomplete triad. The uppermost voice of

each accompaniment stream reinforces the primary axis, with A in the cello and D in the second violins. The first violin part bridges the two axes by moving from A of the primary axis to C# of the secondary one. On the foreground level, this texture reinforces the key of D major. Each triad of the polychord (created by the two accompaniment streams) alternates between being complete or incomplete through its combination with the violin melody. The melody progresses in quarter notes from the dominant to the leading tone. In the second half of measure 538, a suggested G (IV) triad and an A7 (V7) concurrently sound. This polychordal combination is an illustration of Koechlin's second type of vertical stake, which is comprised of a major or minor triad and a seventh chord. The alternation of complete versus incomplete textures progresses as follows. First, the G triad is completed with the addition of the B in the melody. The V^4_3/D becomes complete with the sounding of the leading tone in the melody. This concurrent sounding of tonic and dominant chords from the strings then pause in order to resolve the Fugue theme in the woodwinds and brass. The resolution of the Fugue theme occurs in measures 538-544, as illustrated in Examples 4.16a and 4.16b. The melodic stream is in D major, while the accompaniment streams are split between the keys of C and D, the endpoints of the primary axis. On a thematic level, it also features elements from both the fugue theme of Movement I and the flutter tones of the woodwinds that appeared in the attacca to Movement III (m. 250). The Fugue sounds in the flute on a fluttertone in D. The remaining voices also borrow the fluttertone technique. The accompaniment streams are split into three groups. The timpani suggests the Prelude with its pedal tone on D, which now omits the F# of the opening measures (as the F# belongs to the secondary axis). The

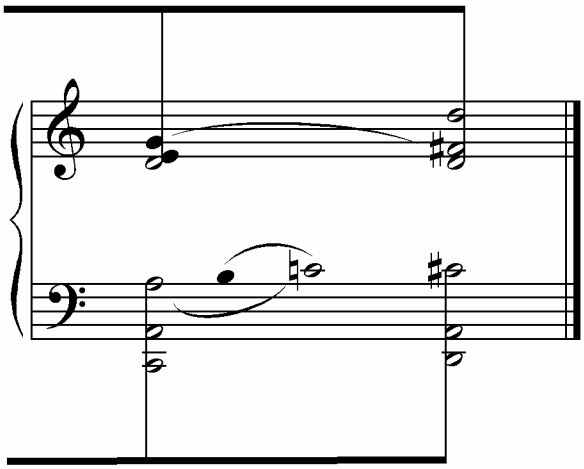
Example 4.16a – Movement V, mm. 538-546



Example 4.16a – Movement V, mm. 537-546, continued



Example 4.16b – Reduction of Movement V, mm. 537-546



two trumpet parts are also in D major, sounding in thirds and falling from scale degrees 5 and 3 in measure 539 to scale degrees 3 and 1 at measure 544. The clarinet parts are in C major and focus on an opening up of the texture from a tonic pedal in C, through a suggested vi chord on A and C, down to an incomplete I^6_4 on G and C. As a result, measure 544 comprises concurrent cadence points in C and D major. The use of concurrent cadence points weakens the primary axis on a background level, as D major also contains the F# from the secondary axis.

In the final two measures of Examples 4.16a and 4.16b, the texture reverts to another verticals stake as in measure 538. It is as if the resolution of the Fugue theme was merely an interruption of the final phrase of the work, which begins in measure 538 and links to measures 545-546. The final two measures employ two accompaniment streams that comprise a polychord, in addition to the final melodic motive, which has fallen from the violin to the saxophone. As in measure 537, the saxophone rises from the

dominant to the leading tone in quarter notes, but extends the progression into the two final measures through the addition of C natural. While remaining strings voice the same polychord in measure 545 as in measure 537, the pitches of the second violin part are divided between the first and second violins. Consequently, the melodic movement of the saxophone determines whether the chord is complete or incomplete. By having the saxophone play a C natural instead of a C#, the dominant portion of the polychord moves to a minor v7 chord, which is also the structure of the primary axis, D-F-A-C. By displacing the C# of the V chord into the final measure, axial balance is accomplished. With the addition of the C#, which creates a major seventh chord on D, the entire texture resolves on a D major triad. This major seventh chord also mirrors the structure of the major seventh chord created by the secondary axis of F#-A#-C#-E#. By using this $D^{M}7$ chord as the final sonority, *La Création du monde* may resolve on both the foreground and axial levels. The distribution of pitches in this $D^{M}7$ chord balances the primary and secondary axes. Each axis is represented with the root and fifth of the seventh chord. Therefore, the primary axis of D is represented by D and A, while the secondary axis on F# is represented by F# and C#. The doubling of the D in the first violins, second violins, cello and bass gives primacy to the primary axis, while still acknowledging the secondary one. In addition, the $D^{M}7$ chord emphasizes the jazz element of *La Création du monde* by ending the work with a major seventh chord instead of a tonic triad. The symbolic microcosm of the entire work during the closing measures illustrates how the composer, through the use of contrapuntal writing and the vertical stake, was able to transfer formal events from the background to the foreground. The final vertical stake of *La Création du monde* is the simplest of the three that Koechlin outlined: it is a combination of major

and/or minor triads. The D major triad and the F# minor triad then combine to anchor the closing tonality of the ballet.

By examining the axial relationships present in *La Création du monde,* one can see how Milhaud took two seventh chords as the basis for the foreground key movement within the ballet. The overall axial progression of the work moves from D minor to F# major and finally returns to D minor. The use of axial root pitches that are related by major third provides the mode mixture and blues scale elements that other scholars, such as Mawer, analyze independently of the background axial movement. In addition, the choice of primary and secondary axial keys in a double chromatic mediant relationship provides an axial organization of polytonal textures that may not be reduced to a single ruling key. Occurrences of non-axial key areas in *La Création du monde* are uncommon, and are used to add polytonal complexity to the opposing key areas of the axial conflict that are not presented with the primary or secondary axis. Among others, sections of *La Création du monde* that include no-axial keys include the section in E major in Movement I (beginning at measure 115) and the section in B major in Movement III (beginning at measure 320). Interestingly, if one examines the non-axial keys of the work, the result is E-G#-B-D#(Eb), or a major seventh chord, which could constitute a third axis under Straus' classification. While this E major seventh chord has the essential qualities of an axis, it does not function strongly enough to have its own polarity within the work.

Examining Milhaud's axial relationships reveals that symmetry is another element of Milhaud's polytonal writing. Many of the movements contain an odd number of key sets. For example, the Prelude has thirteen different sets of keys, with the most distant

elements from the primary axis occurring in group seven, at measure 56. This grouping of keys includes elements from the primary, secondary, and non-axial key areas and comprises F (E#), C, Eb, and Gb (F#). This type of symmetry facilitates an establishment of axial elements, a shift away from these elements in the middle section of a movement, and a return to stability in Movement II (measure 217), Movement III (measure 316), and Movement IV (measure 434).

In conclusion, by using Straus' axial theory, Koechlin's *jalón vertical*, and foreground streaming to explain the harmonic organization of Milhaud's polytonal textures, the harmonic irreducibility of Milhaud's polytonal works remains intact. The use of axial-prioritized organization successfully integrates three elements of Milhaud's polytonal writing. First, it organizes the background harmonic shift from the primary to the secondary axis and back. Second, it addresses middleground issues, such as choice and combinations of keys. Third, it retains the surface level features of the melodic priority of Milhaud's contrapuntal writing and the concurrent harmonic movement among keys.

Works Cited

Bach, J.S. *Duetto in F Major from Clavierübung Part III.* (accessed Mar 1, 2006), <http://www.MutpoiaProject.org>.

Banes, Sally. "An Introduction to the Ballets Suédois." *Ballet Review,* 7:2-3 (1978-79): 28-59.

Bartók, Bela. *44 Violin Duets,* New York: Boosey & Hawkes, 1939.

Batson, Charles Richard. "Words Into Flesh: Parisian Dance Theater, 1911-1924." PhD diss, University of Illinois at Urbana-Champaign, 1997.

Bobbitt, Richard B. "The Harmonic Idiom in the Works of 'Les Six.'" PhD diss, Boston University Graduate School, 1963.

Brender, Richard. "Reinventing Africa in Their Own Image: the Ballets Suédois' "Ballet nègre," *La Création du monde.*" *Dance Chronicle* 9:1(1986): 119-147.

Coeuroy, André. "Le Grand soir de la Musique." *Revue du mois* 22:131 (10 Nov. 1920): 354-366.

Collaer, Paul. *Darius Milhaud.* Paris: Editions Slatkine, 1982.

Collet, Henri. "Un livre de Rimski et un livre de Cocteau. Les cinq Russes, les six Français et Erik Satie." *Comoedia* (16 Jan 1920). Reprinted in Jean Roy, *Le Groupe des Six*, Paris: Seuil, 1994: 192-198.

_____. "Les six Français: Darius Milhaud, Louis Durey, Georges Auric, Arthur Honegger, Francis Poulenc et Germaine Tailleferre," *Comoedia* (23 Jan 1920). Reprinted in Jean Roy, *Le Groupe des Six*, Paris: Seuil, 1994: 198-203.

Cox, Virginia Yvonne. "Simultaneous Diatonic Harmonic Contexts in Early Twentieth Century Music." PhD diss, West Virginia University, 1993.

Daniel, Keith W. "A Preliminary Investigation of Pitch-Class Set analysis in the Atonal and Polytonal works of Milhaud and Poulenc." *In Theory Only* 6 (1982): 22-48.

Day-O'Connell, Jeremy. "Pentatonic," *Grove Music Online.* Ed. L. Macy (accessed 15 Apr 2006), <http://www.grovemusic.com>.

Deroux, Jean. “La Musique Polytonale.” *La Revue Musicale* 2:11 (1 Oct 1921): 251-257.

Drake, Jeremy. “Darius Milhaud,” *Grove Music Online.* Ed. L. Macy (accessed 13 Dec 2005), <http://www.grovemusic.com>.

_____. *The Operas of Darius Milhaud.* New York: Garland, 1989.

Febre-Longeray, Albert. “Du systeme polytonal.” *Le Courrier Musical* 25:8 (15 Apr 1923): 141-144.

Forte, Allen. “Pitch-Class Set Genera and the Origin of Modern Harmonic Species.” *The Journal of Music Theory* 32:2 (Autumn 1988): 187-270.

Fulcher, Jane F. “The Composer as Intellectual: Ideological Inscriptions in French Interwar Neoclassicism.” *The Journal of Musicology* 17:2 (Spring 1999): 197-230.

Hager, Bengt Nils Richard. *Ballets Suédois.* Trans, Ruth Sharman. London: Thames and Hudson, 1990.

Hansen, Peter S. *An Introduction to Twentieth Century Music,* 3rd Edn. Boston: Allyn and Bacon, Inc, 1978.

Harding, James. *The Ox on the Roof: Scenes from musical life in Paris in the Twenties.* New York: St. Martin’s Press, 1972.

Haydon, Geoffrey Jennings. “A Study of the Exchange of Influences between the Music of the Early Twentieth-Century Parisian Composers and Ragtime, Blues, and Early Jazz.” DMA treatise, The University of Texas at Austin, 1992.

Hodeir, André. *Jazz: Its Evolution and Essence.* Trans. David Noakes. New York: Grove Press, Inc., 1956.

Howard, Patricia. 'Henri Prunières,’ *Grove Music Online.* Ed. L. Macy (accessed 15 Jan 2006), <http://www.grovemusic.com>.

Howe, Warren. “The Percussionist’s guide to Darius Milhaud’s *La Création du monde.*” *Percussionist* 17:1 (Fall 1979): 37-50.

Huron, David. “Voice denumerability in polyphonic music of homogeneous timbres.” *Music Perception* 6:4 (1989): 361-82.

Indy, Vincent d’. “Esthétique.” *Le Courrier musical* (15 Jan 1917): 26.

Jordan, Stephanie Anne. “The Early Ballets of Darius Milhaud: 1918-1933.” MA thesis, UCLA: 1974.

Kaminsky, Peter. "Ravel's Late Music and the Problem of "Polytonality."" *Music Theory Spectrum*, 26:2 (Fall 2004): 237-264.

Kelkel, Manfred. La musique de ballet en France de la belle époque aux années folles. Paris: Librarie Philosophique J. Vrin, 1992.

Kelly, Barbara. *Tradition and Style in the works of Darius Milhaud, 1912-1939.* Burlington, VT: Ashgate, 2003.

Koechlin, Charles. "Esthétique?" *Le Courrier musical* (15 Feb 1917): 78-80.

_____. *Traité de l'Harmonie*, Vol II. Paris: Max Eschig & Cie, Éditeurs, 1930.

Krumhansl, Carol L. and Mark A. Schmuckler. "The *Petroushka* chord: A Perceptual Investigation." *Music Perception* 4:2 (Winter 1986): 153-184.

Landormy, Paul. "Le Déclin de l'Impressionisme." *La Revue Musicale,* 2:4 (1 Feb 1921): 97-113.

_____. "Musique polytonale et atonale." *La Victoire* (31 Jan 1922).

_____. "M. Darius Milhaud." *La Victoire* (21 Sept. 1920).

Martin, William R. and Julius Drossin. *Music of the Twentieth Century.* Englewood Cliffs, NJ: Prentice Hall, Inc., 1980.

Mawer, Deborah. *Darius Milhaud: Modality & Structure in Music of the 1920s.* England: Scolar Press, 1997.

Medicis, François de. "Darius Milhaud and the Debate on Polytonality in the French Press of the 1920s." *Music & Letters* 86:4 (Nov 2005): 575.

Milhaud, Darius. *Cinq symphonies pour petit orchestre: III – Sérenade.* Vienna: Universal Edition, 1922.

_____. *La Création du monde.* Paris: M. Eschig, 1929.

_____. "The Evolution of Modern Music in Paris and Vienna." *North American Review* (Apr 1923): 544-554.

_____. *L'Homme et son désir.* Vienna: Universal Edition, 1966.

_____. *Ma Vie Heureuse.* Paris: Belfond, 1987.

_____. "La Mélodie." *Le Courrier musical* 24:17 (15 Aug 1922): 327.

_____. "La Mélodie." *Melos* 3 (1922): 195-198.

_____. *My Happy Life.* Trans. Donald Evans, George Hall and Christopher Palmer. London, Marion Boyars: 1995.

_____. *Notes sur la Musique: Essais et Chroniques.* Compiled and introduced by Jeremy Drake. France: Flammarion, 1982.

_____. *Poèmes Juifs,* "Chant de la pitié." (accessed May 1, 2006), <http://www.sheetmusicplus.com>.

_____. "Polytonalité et atonalité." *Revue Musicale,* 2:4 (1923): 29-44.

_____. *Saudades do Brazil.* Paris: M. Eschig, 1922.

_____. *Les Soirées de Pétrograde.* Paris: Durand & Cie, 1920.

Morrill, Dexter George. "Contrapuntal Polytonality in the Early Music of Darius Milhaud, Part II." D.M.A. Thesis, Cornell University, 1970.

Neumeyer, David. *The Music of Paul Hindemith.* New Haven: Yale University Press, 1986.

"Boche," *The Oxford English Dictionary Online*, http://www.oed.com, accessed 1 March 2006.

Pasler, Jann. "Les Apaches." *Grove Music Online.* Ed. L. Macy (accessed 1 Mar 2006), <http://www.grovemusic.com>.

Perloff, Nancy. *Art and the Everyday: Popular entertainment and the circle of Erik Satie.* New York: Oxford University Press, 1991: 201-05.

Prunières, Henri. "Darius Milhaud." *Nouvelle Revue Française* (May 1920): 763-767.

Rischbeiter, Henning. *Art and the Stage in the Twentieth Century: Painters and Sculptors Work for the Theater.* Trans by Michael Bullock. Greenwich, CT: New York Graphic Society, 1968.

Roquebrune, "La musique polytonal." *Revue critique des idées et des livres* (25 Dec 1920): 747-750.

Rostand, Claude. *Darius Milhaud: Entretiens avec Claude Rostand.* Paris: René Julliard, 1952.

Rostand, Claude. *Darius Milhaud: Interviews with Claude Rostand.* Pref and trans Jane Hohfeld Galante. Oakland, CA: Center for the Book, Mills College, 2002.

Roy, Jean. *Le Groupe des Six.* Paris: Seuil, 1994

Russ, Michael. "Accounting and Mediating: Modes, Genera, Voice-Leading and Form in Milhaud." *Music Analysis,* 19:2 (2000): 233-55.

Salzer, Felix. *Structural Hearing: Tonal Coherence in Music.* New York: C. Boni, 1952.

Schloezer, Boris de. "Darius Milhaud." *La Revue Musicale* (1 Mar 1925): 250-276.

Schoenberg, Arnold. *Structural Functions of Harmony.* London: W.W. Norton, 1954.

Siepp, Elke. *Die Ballettwerke von Darius Milhaud: Untersuchungen zur Typologie und Bedeutung im Rahmen der französischen Ballettkunst als "Zeitkunst" (1910-1960).* Tutsing: Verlegt bei Hans Schneider, 1996.

Silver, Kenneth E. *Esprit de Corps: The Art of the Parisian Avant-Garde and the First World War, 1914-1925.* Princeton, New Jersey: Princeton University Press, 1989.

Straus, Joseph N. "Stravinsky's 'Tonal Axis.'" *The Journal of Music Theory* 26:2 (Autumn, 1982): 261-290.

Stravinsky, Igor and Robert Craft. *Expositions and Developments.* New York: Doubleday, 1962.

Terhardt, Ernst. "Algorithm for extraction of pitch and pitch salience form complex tonal signals." *Journal of the Acoustical Society of America* 71:3 (1982): 679-88.

Thompson, William F. and Shulamit Mor. "A perceptual investigation of polytonality" *Psychological Research-Psychologie Forschung* 54 (1992): 60-71.

Tymoczko, Dmitri. "Stravinsky and the Octatonic: A Reconsideration." *Music Theory Spectrum* 24:1 (2002): 68-102.

Ulehla, Ludmila. *Contemporary Harmony.* New York: The Free Press, 1966.

Watkins, Glenn. *Pyramids at the Louvre: Music, Culture, and Collage from Stravinsky to the Postmodernists.* Cambridge, MA: The Belknap Press of Harvard University Press, 1994.

Yang, Sandra Sedman. "The Composer and Dance Collaboration in the Twentieth Century: Darius Milhaud's Ballets, 1918-1958." PhD diss, The University of California at Los Angeles, 1997.

Vita

Laura Christine Amos was born in Walnut Creek, California on December 25, 1972. After graduating from Gilroy High School in Gilroy, California in 1991, she attended Cabrillo College in Aptos, California and transferred to Indiana University in Bloomington, Indiana, where she received a Bachelor of Music in Voice Performance in 1996. She then attended San Jose State University in San Jose, California, where she received the degree of Master of Arts in Music Systems in 1999. From 1998-1999 she served as both a teaching assistant and an assistant instructor at San Jose State University. She also worked as a Research Assistant at the Ira F. Brilliant Center for Beethoven Studies in San Jose, California from 1997-1999. From 2000-2001, she served on the faculty of Cabrillo College. She entered the Graduate School of the University of Texas at Austin in fall of 2000, where she served as both a teaching assistant and assistant instructor from 2000-2004. In 2003-2005, she was awarded a Graduate Internship at the Harry Ransom Humanities Research Center in Austin, Texas. She is currently employed at The State University of New York at Potsdam, in the Crane School of Music, Potsdam, New York.

Permanent address: P.O. Box 105, Potsdam, NY 13676

This dissertation was typed by the author.